

RAND

*Assessing the Usability and
Usefulness of the CAHPS
Decision Helper, Version
2.0*

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DRU-2330-AHRQ

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August 2001

Prepared for the Agency for Healthcare Research and Quality

RAND Health

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PREFACE

Health care consumers find themselves in a difficult position. Decisions about health care plans are increasingly complex and plan coverage is increasingly expensive. Yet, the information needed to make more informed, cost effective decisions is not easily available or accessible to many Americans. In other purchasing areas consumers may be able to find objective sources that provide information on specific products or consumer reports, yet this tends not to be the case when choosing a health plan. As a result, the Agency for Health Care Policy and Research (now the Agency for Healthcare Research and Quality) has funded the Consumer Assessment of Health Plans Study (CAHPS®), a five-year research project that responds to consumer needs for information about health care quality. The agency awarded cooperative agreements to RAND, Harvard Medical School and the Research Triangle Institute to develop surveys and reporting kits as well as to provide objective health care information to both the privately and publicly insured consumers. The computer based Decision Helper, developed by RAND in collaboration with Kleimann Communication group, American Institute for Research, and Harvard Medical School, provides potential enrollees with summary information about health plans based on consumer reports and ratings of care.

This document summarizes results of two rounds of usability testing of the Decision Helper, version 2.0. Cognitive interviewing methods were used to assess the computer-based tool in terms of its navigation, structure, format, design and content. Our findings are of interest to health care consumers, distributors, providers, researchers, practitioners, and employers who are attempting to provide their employees with plan options.

Although this document has not been reviewed or formally edited, it may be cited without obtaining the permission of the authors.

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SUMMARY

The computer-based Decision Helper is a tool used to report how consumers enrolled in health plans assess their experiences in those plans. This information can be used by potential enrollees to inform their own plan choices. The Decision Helper was one of the reporting products, along with templates for printed reports, that we developed as part of the Consumer Assessment of Health Plans Study (CAHPS®). Consumers' reactions to the computer-based tool were used to assess and revise its architecture, user interface, and content.

We conducted two rounds of usability testing with the Decision Helper. In each round, a total of 11 Medicaid and privately insured participants were interviewed. In a two-hour one-on-one interview, participants first reviewed the Decision Helper site independently while giving feedback on their overall impressions of the site. They then answered specific questions about individual web screens and gave their opinions on the usability and usefulness of these screens and the site as a whole. Participants also completed a written questionnaire, which elicited their reactions to the site and gathered personal background information, such as participant's age, gender, and prior computer experience.

Although the protocols used in the two rounds were similar (see Appendix 1 and 2), we used results from the first round to identify problems with the site, revised the site, and then used the second round of testing to evaluate whether the revisions were successful. Because use of the Web to assist health-care decision-making has begun only recently, it was particularly important to understand participants' level of comfort with the site's format and with the Web as a medium for gathering information.

Usability testing was determined to be the best method of assessment because site users may identify problems that are not immediately obvious to the survey designer or to the Web developer. Usability testing, when incorporating cognitive testing techniques, consists of presenting the user with a document or website in order to

elicit comments and concerns from the users' point of view. This type of testing has been shown to identify problems such as questions that are interpreted inconsistently or not as intended, respondent difficulties in understanding structure, navigation, or content, redundancy in content, difficulties in structure or flow, wording or terminology that may be particularly confusing, or problems understanding the informational medium (Harris-Kojetin et. al., 1999).

Participants in both rounds of testing indicated that the Decision Helper was easy to use and would be helpful if they were selecting a health plan. However, subjects in round one reported several key problems with site format, navigation and content. Although most subjects said they found the CAHPS® survey results valuable, they were surprised and frustrated that the tool did not contain "essential" information on costs, coverage and provider availability. Participants who had little computer experience had difficulty using the site because they did not understand how the site was structured or how to navigate through it.

ACKNOWLEDGMENTS

The authors would like to thank Susan Kleimann, Kleimann Communication Group, and Julie Brown, RAND, for their assistance in developing the usability testing protocol, and Sonia Boyum for her editorial assistance.

Version 2.0 of the Decision Helper, although extensively modified from version 1.0, builds on the work done by the team that developed version 1.0, which includes researchers from RAND, American Institutes for Research (a part of the Harvard consortium), and Kleimann Communication Group. Many aspects of the design are adapted from the printed CAHPS® report template, developed by a team from Research Triangle Institute, Harvard Medical School, the Agency for Healthcare Research and Quality, and RAND, and from work on a related computer product for Medicaid beneficiaries, designed by RAND and Digital Evolution.

INTRODUCTION

Choosing a health plan is an important but difficult decision for consumers. When making a health plan decision, consumers should be able to compare available plans in terms of benefits, costs, availability of providers, health care delivery and quality. Comparative information on plans has often been limited to basic cost and benefit information while information on quality has been difficult to obtain.

In an effort to give health care consumers new information with which to compare the quality of health plans, the Agency for Healthcare Research and Quality (AHRQ) funded the Consumer Assessment of Health Plans Study (CAHPS®). The goal of CAHPS® was to provide consumers with reliable and valid information that they could use to select high-quality plans that fit their needs and circumstances (Crofton, Lubalin, and Darby, 1999). Begun in 1995, this five-year project funded three grantees (Harvard University, RAND, and Research Triangle Institute) and one contractor (Westat) to develop and test survey and reporting tools to help consumers assess the quality of their health plans. The products of this research include a state-of the art survey to elicit reliable and valid information from consumers about their experiences with health plans and reporting tools to convey the survey results to consumers choosing a health plan. The CAHPS® grantees developed reporting templates in both print and computer formats. The printed report is a booklet called *Compare Your Health Plan Choices*. The computer tool is called the *Decision Helper*¹. This paper reports on testing of the usability and usefulness of the computer-based health plan decision support tool, the Decision Helper.

¹ The two versions of the CAHPS® Decision Helper described in this paper can be found at <http://www.rand.org/health/cahps/old/dhv2/welcome1.htm> (Round 1) and <http://www.rand.org/health/cahps/dh/index.html> (Round 2).

PURPOSE OF TESTING

From laboratory experiments, we have learned that consumers who utilize the computer or the paper CAHPS® reports choose different plans from those who do not (Spranca et al., 2000), although the effects of CAHPS® reports on health plan choices in the real world appear to be modest at best (Farley et al., 2001; Farley et al, in press). Evidence from field demonstrations suggests that among those who are mailed printed CAHPS® reports, the percentage who look at it ranges from 24% to almost 90% (Short et al., 2001). Because web-based materials are accessed by users rather than distributed to them, it is more difficult to determine rates of use for computer-based reports. Nevertheless, it is clear that not everyone who is exposed to the Decision Helper will use it.

In an effort to improve the likelihood that consumers will use the Decision Helper, we set out to evaluate the *usability* and *usefulness* of the CAHPS® Decision Helper. We felt that usability is a necessary but not sufficient characteristic for a useful site. *Usability* has to do with such things as whether participants are able to easily navigate through the site, the content is clear, and the information on the site is well organized. For the site to be truly *useful*, users needed to feel that the Decision Helper aids them in the process of selecting the best health plan. To assess the usability of the Decision Helper, we tested the ease of site navigation and the comprehensibility of information on the site. To assess its overall usefulness, we asked participants how valuable they thought the Decision Helper would be if they were to switch plans, choose a new plan or compare their current plans to the health plans being rated. We also asked users to assess usefulness more specifically by discussing the extent to which each screen enhanced the value of the site as a whole.

As the CAHPS® Decision Helper is designed for a diverse population of privately insured individuals and Medicaid decision-makers, use of the tool requires a basic familiarity with a web browser.

From December 1 to December 15, 1999, 11 participants came to RAND to view and comment on the CAHPS® Decision Helper. After their comments had been analyzed and the Decision Helper had been modified, 11

different participants viewed and commented on the revised website. This report addresses the findings and methodology used to elicit the 22 participants' comments, concerns and suggestions on how to improve the Decision Helper's structure, navigational cues, and content. It also describes the changes we made as a result of the usability testing.

METHODS

SAMPLE

In both rounds one and two of usability testing, the 22 participants varied in Medicaid coverage, age, professional status and ethnicity (See Table 1). Ten participants were Medicaid recipients and 12 were privately insured.

Table 1: Demographic Characteristics of Medi-Cal and Privately Insured Participants

DEMOGRAPHIC VARIABLES	PERCENTAGE OF MEDI-CAL PARTICIPANTS (N=10)	PERCENTAGE OF PRIVATELY INSURED PARTICIPANTS (N=12)
Participants aged under 34	40.0	33.3
Participants aged 35-44	20.0	25.0
Participants aged 45 +	40.0	41.7
Female	80.0	50.0
Caucasian	30.0	66.7
African-American	50.0	8.3
Asian	0.0	16.7
Hispanic	20.0	8.3
With at least 4 years of college education	20.0	58.3
"Excellent or Very Good" self-reported health	70.0	75.0
Spends greater than 10 hours/week using computer	(n=8) 12.5	(n=9) 88.9
Participants with children	70.0	33.3
Income under \$35,000 Fiscal Year 1999	100.0	17.0

PROCEDURE

We conducted two rounds of testing to assess the Decision Helper's perceived usability and usefulness. Round one consisted of 11 interviews. After making revisions based on the results of round one, we conducted a second round of testing with an additional 11 eleven participants to assess the revised Decision Helper. Participants from rounds one and two of testing were recruited by Focus L.A., a focus

group recruiting firm. Participants provided oral consent to participate in the study at the time of recruitment. A single interviewer conducted each two-hour interview. After participants had arrived at RAND, the interviewer explained that the Decision Helper was designed to help users choose a health plan. In the first part of the interview, participants were given as much time as they needed (25 minutes on average) to view the site; they did not have to look at every screen or follow a particular order. Participants were asked to give feedback in a "think-aloud" manner as they reviewed the site. After they had completed their review of the site, participants were asked to give their overall impressions, describe any aspects that they found confusing, identify features they thought were especially effective, etc. (see Appendix 1 for the full protocol). The participant and interviewer then reviewed the individual site screens, discussing the detailed features of each screen and its place within the site. Participants also completed a written questionnaire that elicited demographic information and asked their opinions on the site as a whole and on the individual screens. Although the questionnaires were the same for both privately insured and Medicaid participants, the demographic portion was altered slightly to fit the applicable population. (See sample demographic questionnaire for the privately insured in Appendix 2).

In order to assess the site's usability and usefulness, we used an iterative approach to testing. We conducted two phases of one-on-one, interviewee-interviewer, usability testing. This method allowed us to assess reactions to the Decision Helper, identify problems and develop a set of changes designed to address them, implement these changes to the Decision Helper, and then test the effect that these changes had on the tool's usability and usefulness. It also allowed us to determine whether the changes actually yielded the intended improvements and to assess whether any new problems were introduced as unintended side effects.

In conducting the usability interviews, we utilized two main strategies: retrospective and concurrent assessment. During the unstructured interviews we utilized the retrospective approach. The

interviewer allowed the participant to review the site in full and then asked for overall impressions of the site and of individual screens. During the structured interview we utilized the concurrent strategy: the user viewed the website while answering questions about each screen, such as ("Where do you think this link could take you"), and was encouraged to "think-aloud" while reviewing particular web screens. The information elicited through the retrospective approach has been shown to be useful in detecting problems with overall site structure and navigation. The concurrent approach is particularly useful for examining potential problems with individual screens and the linkages between screens. For example, participants were not only asked their impressions of each screen, but were also asked to explain the meaning of a section of text in their own words. Using both the concurrent and retrospective techniques of assessment provided for a more comprehensive review of the site's usability than would use of either strategy on its own.

Structure and Content

The original version of the Decision Helper tested in round one and the revised version tested in round two had similar site structures. The first screen was a "Splash" screen designed to attract the user's attention, provide a short summary of the website, and motivate the user to begin using the site. The following screens were grouped into four major sections. The first was the "Welcome" section, which included two or three screens that introduced the health plan choices available, the importance of making a good choice, and provided basic guidance about using the Decision Helper. The "Types of Plans" section consisted of two screens that explained the basic differences between the types of plans the user was to choose from (i.e., HMO, PPO, FFS). The "Survey Results" section consisted of four or five primary screens describing the importance of understanding quality of care in making a health plan decision, and more than 25 secondary-level screens presenting survey results data. The survey results reported users' opinions of their health plans on seven topics: Getting Care That Is Needed, Getting Care Without Long Waits, How Well Doctors Communicate, How People Rated Their

Health Care, Courtesy, Respect and Helpfulness of Office Staff, Health Plan Customer Service, and How People Rated Their Health Plan. The survey results were displayed in two formats: (1) summary tables comparing health plans on each of the seven topics described above, using one, two or three stars to show plans that were worse than the survey average, about the same as the survey average, and above the survey average for all plans, respectively; (2) detail tables, showing the questions asked for each topic and summarizing the overall response distribution in bar charts. The fourth and final section was "Your Worksheet," which included three to four screens that summarized all the information presented with a customized worksheet, and presented advice to the user about important factors to consider when making a choice, such as doctors, costs and benefits. During the unstructured interview, participants were free to explore the site in the order they wished. During the structured portion of the interview, the interviewee and interviewer reviewed the site in the order listed above.

Both the original and revised versions of the Decision Helper had similar layouts and navigational aids. In both cases, the layout consisted of a primary navigation area on the left side of the screen and a larger content area on the right. The content area comprised text, data tables, and active hypertext "links" (underlined text) that allowed the user to navigate to other screens and to obtain related information or move to another topic. The text, tables, and hypertext links were written in HTML, a common formatting language used to program websites. The data tables were used either for data collection or for data display. The primary navigation area consisted of hypertext links grouped into four sets of navigation links, organized according to the four sections described above.

Certain aspects of the primary navigation area in the version tested in round one were changed in round two. The background color of the navigation area in round one matched the background color of the main content area (white with black text, for maximum readability). In round two, the content area retained the white background, but a light tan color was used in the background of the navigation area, to help the user distinguish between words that were to be read carefully for

content and those that were simply to be used for navigation. The coloring gave the main text prominence, while causing the navigation area to recede into the background instead of competing for the user's attention. The primary navigation area also differed between round one and two in the number of hypertext links presented and the color of the links. The version used in round two incorporated improvements to the content, which resulted in fewer navigation links overall that were better organized and more clearly labeled. In round one, the links that the user had not yet clicked on were black, while those that the user had clicked on were blue. In the revised version of the site all links were blue and link color was not dependent on whether the links had been utilized. The primary navigation tool, the Contents Box, was significantly changed. In round two, the Contents Box displayed all the primary navigation links at a glance, in contrast to the round one version, which only displayed the four primary section links along with those sub-links for the section that the user was currently viewing. The round two version displayed all the primary navigation links at once so that the user could see at a glance how many total screens were available and see a screen's location within the website's overall structure.

Both versions incorporated secondary navigation in the form of a "next/continue" button, to allow the user to proceed to the next screen in a predetermined sequence (in contrast to the more exploratory navigation structure available in the aforementioned primary navigation bar, which allowed users to browse the different sections of the site in the order of their choosing). However, the two versions differed in the location and prominence of the secondary navigation. The version in round one presented the "next" button as a large graphical button in the upper left portion of the screen, above the primary navigation area; however, the version tested in round two included a hypertext link labeled "continue", located at the top of the content area along with the main body of the text. The new location chosen for the secondary navigation was designed to make it easier for the user to move forward to the next screen. Placing the link within the content area made it more convenient for users to continue through the site when they

finished viewing the content of each screen, instead of requiring users to shift their view to the left side of the screen (away from the content) each time they wished to continue.

MEASURES

Four types of data were collected through the usability tests: observational data, unstructured feedback, structured comments and written feedback. The observational data were recorded as the user freely viewed the website. Instructing users to use the site as they would at home or in another unobservable place, the interviewer was able to see what screens were skipped, which screens were viewed the most, which navigation tools were used, etc. Because the user was allowed to freely search the site, the observation part of the interview was representative of how the average user would approach and navigate through the site. During the unstructured portion of the interview, the interviewer asked users to verbalize their overall opinions of the site. Participants gave both negative and positive feedback on site structure, content, navigation techniques, background, font, screen color and any other aspects of the site that stood out. This unstructured portion of the interview was key because it allowed the interviewer to compare respondents' comments. In the first round of testing, participants consistently mentioned problems with the same sections of the site, so that the areas in which changes were needed were apparent.

During the structured section of the interview, the interviewer and the participant explored the site in a more orderly fashion. Participants' reactions to each screen were gathered. They were asked how they interpreted each screen as well as the value they thought each screen added to the site. They described how each screen fit in with the rest of the site, how easy each was to understand, how useful each screen was, and how individual screens might be improved. (See Appendix 2 for specific questions).

During the written part of the usability tests, participants were asked to select one of the plans, describe why they selected that plan, what influenced their decision and what more the site could have done to aid in their decision making. We also assessed participants'

impressions of the site's usefulness for comparing health plans, navigation, ease of understanding, information offered, and areas in need of improvement. (See Appendix 1 and 2 for sample protocols and questionnaires. Although the questionnaire was utilized for all participants, only slight changes were made between cohorts. Therefore, only one of the four questionnaires that were administered is displayed in the Appendix.)

OVERALL RESULTS

SITE STRUCTURE AND NAVIGATION

Site structure and navigation needed major improvement.

During round one of testing it became apparent that site structure and navigation needed to be more user friendly. Participants had significant difficulty locating on-screen links, and a number of users felt lost while navigating through the site. "I just don't know where to go here, I can't tell where you want me to go next." When we asked participants who were viewing the final website screens to return to a specific screen in the middle of the site, four of eleven could not do so. "Okay, so you are asking me to go back to the first survey that I looked at. Well I just don't see how to do it, maybe I could go back one screen at a time, but I don't see another way."

Participants used both the Contents Box and arrow keys for navigation, yet suggested that more instruction was needed on site navigation. "So I can use this box on the left side to get around the site? I didn't see that, usually links stand out more clearly." They also felt that providing a clearer structure would decrease the likelihood that a user would "lose his place" on the site. Because the general rather than specific headings of the site were listed in the Contents Box, users were also unclear which sub-topic screens fit with which general topic screens. As one interviewee said, "So I am reviewing the results of the adult survey, well I guess that the next place that I'm supposed to go is to the 'Worksheet' screen." An unclear structure and navigation path led participants to miss significant parts of the website. For example, the "Children's Care" and "People Who Use A Lot of Care" titles did not appear in the Contents Box unless the user actually visited the "Other Survey Results" section, when the contents for that section expanded. From elsewhere in the "Survey Results" section, the heading "Other Survey Results" stood alone. As a result, four of the eleven participants in the first round of testing overlooked

this information, not realizing that it was there or assuming that "Other Survey Results" referred to additional results for the general adult survey population. Participants also found it difficult to distinguish the "Summary" and "Details" screens for "Adults," "Children's Care," and "People Who Use Lots of Care". As one participant said, "I feel like I'm seeing the exact same screen over and over again, I just saw a bunch of stars rating the plans." Another participant commented, "I'm not sure whether I'm looking at the adult or child survey, there is no way for me to tell which population this survey is describing."

Four participants initially had trouble distinguishing between the "Summary Chart" and the "Review the Results" screen. As one participant noted, "Didn't I just see this screen? It is reviewing the results of the plans that were just reviewed." To help users know where they were on the site, the design team had placed a red arrow within the Contents Box that pointed to the header, which corresponded with the current web screen. However, many participants did not see the arrow or else did not realize its significance; only three of the eleven website testing participants found it useful.

Several changes were made to clarify website structure. The main change was the expansion of the Contents Box. By having the four headings ("Introduction," "Types of Plans," "Survey Results," and "Your Worksheet") and 11 sub-headings initially visible during the second round of testing, rather than visible only after one of the main topics is selected as in the first round of testing, the site structure was made more transparent and participants had an easier time with navigation. Additionally, the expanded version of the outline used a blue ball instead of the red arrow to maintain a place-keeping icon in the Contents Box. As a result of these changes, participants were more likely to see more of the screens on the site during the unstructured observational period of the usability testing. However, the expanded Contents Box in the second round of testing did not help users navigate to the "Doctors", "Benefits", and "Costs" links on the "Your Worksheet" screen. Participants were not able to see that these 3 titles represented links within the "Your Worksheet" screen and therefore were

prone to skipping these screens. Only four of the eleven interviewees in round two and one of the interviewees in round one saw the links to these screens on the "Your Worksheet" screen.

A few other additions and changes to the site were made to improve the clarity of site structure. A brief description of how to use the Contents Box and the "Continue" key (which replaced the back and forward arrows) was placed on the "Introduction" screens. A screen titled "What's in the Decision Helper?" was retitled "Getting Started," and instruction on use of the continue key follow a brief description of how the site was structured. In the Survey Results section, the "Other Survey Results" sub-heading was replaced by two more specific titles, "Results for Children" and "Results for 3+ Visit Users" to clarify exactly what population was being represented by the "Other Survey Results". Additionally, a general category topic and sub-category topic heading was added to each screen to help users identify where they were on the site. For example, on the screen explaining the differences between HMOs and PPOs, the title of this screen includes the general heading, "Types of Plans," as well as the sub-heading, "HMOs and PPOs".

Because participants in the first round of testing had some trouble personalizing the "Review the Results" and "Your Worksheet" screens, two instructional pop-up screens were added to the site in order to explain to users how and why they should enter information on these two personalizable web screens. When the 22 participants were asked whether it was easy for them to find the information they were looking for on the site, four participants in the first round of testing and six participants in the second round said that it was "very easy," six participants in the first round of testing and five in the second round stated that it was "somewhat easy," and one participant in the first round of testing said it was "somewhat hard" (See Figure 1).

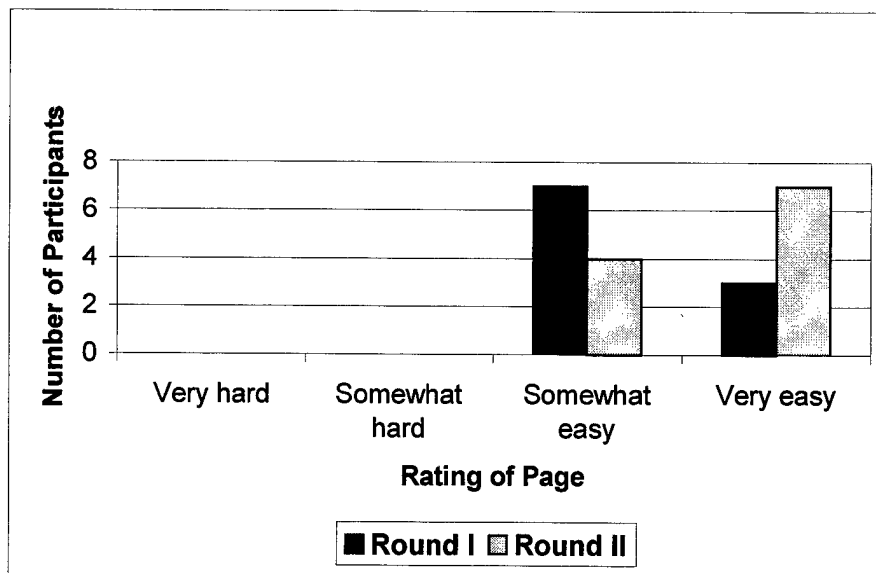


Figure 1: Ease of Understanding Site Information

USABILITY

We identified four general areas in which there were problems with site usability: the site structure needed to be made clearer, navigational cues needed to be more apparent and user friendly, certain headers needed to be made more descriptive, and various aspects of user interface needed improvement. We discuss each of these areas in turn.

Those with little web/computer experience had difficulty understanding site structure and navigation.

A significant finding was that participants who had little experience with computers or the Web had difficulty understanding how the site was structured and how to navigate through it. This was true even though participants received instruction on how to locate website links, basic navigation (using the Contents Box or the arrow icons), and the interactive nature of the web screens (e.g., information entered on the "Review the Results" screen would be integrated onto the "Your Worksheet" screen). Participants who did not have previous exposure to computers and/or the web did not feel comfortable relying on site information. As one woman said "I just don't get this. I'd rather just look over the booklet that the health company gives me." For these

users, being uncomfortable with the computer as a medium for health plan information led to difficulties in understanding how to use the site. One participant insisted that "there is just no way I'm going to use this thing to decide who my baby sees as their doctor." Like this woman, some participants had not been exposed to the Web and did not understand or trust it as a way to make "real life" decisions. However, at least one study has shown that consumers who have had previous Web exposure don't always trust information coming from the Web (Berry et al., 2000).

For those lacking Web experience, problems with the site began immediately; two participants had difficulty identifying the start button on the "Splash" screen. In contrast, participants who had previous computer and Web exposure (assessed by self-reported use of at least 10 hours of computer use per week) reported little trouble with overall website use and navigation. Because they were comfortable with techniques of browser use, including scrolling, recognizing active links and basic site navigation, they were able to get through the site faster. Experienced users also seemed more comfortable than less experienced users with using computer-based information to choose a health plan. Perceived comprehensiveness of site instruction, navigation, content and site personalizability were dependent on previous Web experience. For instance, those users who had more extensive Web experience were more likely to see that information from the "Review the Results" was carried over to the "Your Worksheet" results. Perhaps because experienced users knew what to look for on a site, figuring out that the Contents Box was a site outline and that blue underlined text signified an active link was easier for them.

The Contents Box, interactive web screens and other navigational tools needed to be made more apparent and more user friendly.

A problem noted by every participant in the first round of testing, including those with and those without previous computer experience, was the difficulty of detecting on-screen links. Of the eleven participants in the first round, three failed to realize that the Contents Box could be used as a navigation tool. Ten of the eleven

missed the "What Do the Bar Graphs Tell You" and the "What Do the Stars Tell You" screens. Participants also failed to notice the link between the "Review the Results" screen and the "Worksheet" screen, the links to the "Details" and "Summary" screens on the "Survey Topics" screen and links to the "Doctors," "Benefits," and "Costs" screens on the "Your Worksheet" screen. As one first round participant stated, "I don't see how I can get from one survey to the next without going to every screen. There is no way to jump around". Another first round participant commented on difficulty of detecting on-screen links: "You see the problem is that the text is all the same color. So I couldn't see that you could link to the graphs from the "Survey Topics" screen. You guys need to make the box on the left hand side (Contents Box) more visible as a link."

Additional suggestions for improving link visibility included: setting the color apart from the rest of the text, having the links flash, including a descriptive screen in the introduction that discusses how to identify links, and increasing the size and dimensions of the links. To address the problems identified by the first-round participants, we changed all of the link colors from black to blue with underlining so that the links would stand out from the black text. (On the first version of the website, un-clicked links were black in text color. Once clicked on, the link text became blue). We also lengthened the Contents Box to fill the left side of the screen. During the first round of testing, the Contents Box listed only four main headings, from which sub-headings would appear when one of the main headings was selected. As revised for the second round, the Contents Box, which listed the four main headings with 11 links to sub-topics, was much more prominently displayed on the screen.

After we had made these changes, participants found the site easier to navigate and the site information easier to understand. "It's pretty clear how you can move around the site. By clicking on, for example, one of the survey topics, I can see how the topic was rated." As the links on the "Review the Results" screen were more visible and the pop-up boxes were added, participants were more likely to identify the interactive nature of the site. In explaining how different site

information was linked by different screens one participant said, "After entering my opinions on each of the plans on the "Review the Results" screen, the information is transferred over to the "Worksheet" screen." Few round one participants had this understanding of how the information on one screen transferred to another. Overall, participants had a better understanding of the site when navigational tools were made more visible and were better explained (see Figure 2). As a result of these and other changes, participants in the second round of usability testing rated the website more highly than did those in the first round.

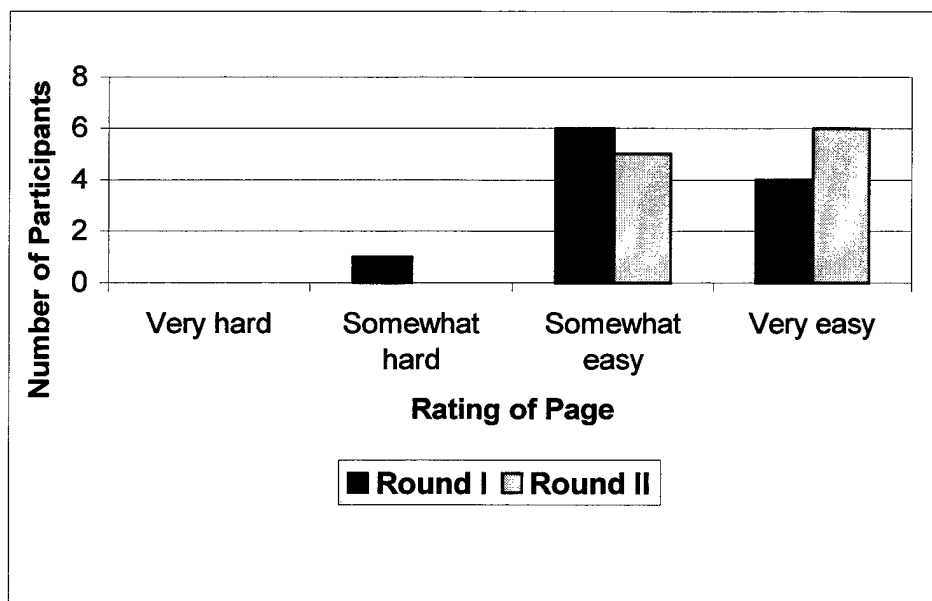


Figure 2: Ease of Website Navigation

Though site language was clear and comprehensive, headers, links, and terms needed to be more descriptive.

Participants in the first round of testing felt that the language used on the site was clear and easy to understand. This finding bears on a key aspect of usability. The language used to describe the nuts and bolts of health insurance coverage and systems of care delivery includes many terms and concepts that are difficult for consumers to understand. Selecting a health plan is difficult in part because of the complex language used by health plans in describing their coverage and the various costs (premiums, deductibles, co-pays, etc.) included in health care expenses. It was important that the language used in the

Decision Helper be consistent with terminology people would find in other materials yet be as clear as possible to people of all educational backgrounds. As one participant said about the "Types of Plans" screen, "This is good, the information is clear, I can see the comparisons that you are trying to make between HMOs and PPOs."

Nevertheless, participants in both rounds of testing felt that some screen headers and links were not accurate. For example, one participant expected that the "doctors" link on the worksheet screen would give information on the specific doctors in each plan, when in reality it simply listed key questions to ask when selecting a personal doctor. "See this isn't right, I came to this screen because I wanted to see who I could choose as a doctor and whether my doctor would be on this list. I don't think that this title really explains what the screen shows".

Eighteen of the 21 participants felt that the description of the "People Who Use A Lot Of Care" subgroup as individuals who use care three or more times a year was misleading. Participants said that going to the doctor at least three times a year was the norm, but because of the title they skipped these seemingly irrelevant screens. As one woman said, "A normal person goes to the doctor at least three times per year. I don't think that should count as using lots of care." Sample size considerations had dictated the selection of "three or more visits" as the threshold for defining a group that used higher amounts of care; if the threshold were set at a higher number of visits, too few survey respondents would be considered high users of care to permit meaningful comparisons among plans. However, "three or more visits" does not correspond to consumers' notions of what constitutes "using lots of care." Based on participants' reactions, we revised the label for the section on this cohort to "Results for People with 3+ Visits."

The user interface needed improvement.

In the first round of usability testing, monitors were set to display the "normal" size font (96 dpi). Four participants complained that the text was difficult to read and that too much of the background was visible. Therefore, monitor settings were modified in the second round to display a larger font (120 dpi). As a result of an increase in font size and screen size none of the participants in the second round of testing complained about reading site text.

In the first round, four participants mentioned that they found the site's bright background distracting and suggested that the color be changed. As one participant said, "I think that the green is really distracting, I can't concentrate on the text because of the background is so noisy." Suggestions on how to improve the background ran the gamut from using a plain white background to introducing a "Millennium theme" with balloons and streamers. Three participants in the first round of testing mentioned that they had difficulty reading text on certain screens in the "Welcome" and "Review the Results" sections where the title or introductory information was placed on light blue or green background. "You need to get rid of the background color behind the titles. For some reason it made me skip over the words and not read the screen's instructions." Another participant commented, "The colors need to be changed...keep the text in its own area, without any colors, but put more in other areas of the screen."

To address this readability problem, the Decision Helper design team changed the screen layout, the background colors, and the text box colors. The version of the Decision Helper that we tested in round one had arrow links on every screen that would take the user to the previous screen or next screen and a button link that would take them to the home screen. Based on the first round of testing results, the design team replaced these arrow keys with a "continue" link on the upper right of each screen that would lead the user to the next screen and modified the Contents Box to provide a more detailed listing of site contents with active links to other sections. The design team increased the size of the font and made the text boxes larger so that less of the background

was visible. The design team also changed the background colors to more neutral tones and made the screen titles more noticeable by eliminating the surrounding background color and making the title font brighter. Participants in round two did respond more positively to the revised color scheme. As one user said, "These pastel colors are kind of unusual, but I guess that they make sense. With more dull colors it doesn't hurt your eyes to stare at the screen."

Results from the second round indicated that the changes made to the site as a result of the round one users' comments improved users' experience with the site. Participants still missed a number of links, but the changes in link colors, the increase in the link font size, and the inclusion of additional instructions on navigation greatly improved user interface. The disadvantage of some required scrolling due to the increased font size appeared to be more than compensated by having a more readable font.

USEFULNESS

Participants who were unfamiliar with computers and the net did not find the site useful.

Not surprisingly, the Decision Helper appeared much more valuable to those who had computer experience than to those who did not. As one woman said, "I don't really trust computers and would just prefer to have the health plan booklet." Another participant made a similar statement: "It's just not the way that I usually go about choosing a plan, so I don't know if I'd really select a plan that a computer recommended." Five of the seven participants without computer experience expressed this sentiment.

Participants needed additional logistical information to make final health plan decisions.

Participants of all levels of computer experience also felt that the site would be more useful if "objective information" such as costs and lists of doctors available in the plan were included. The CAHPS® Decision Helper version 2.0 focuses on health plan survey information and important issues to consider when selecting a health plan.

Therefore, we tested only the template for presenting CAHPS® survey information and did not test an expanded version that includes costs, benefits, or other information about plans.

Sixteen of the 21 participants found the site to be useful overall but said that they would have a difficult time using only the information found on the site to make a health plan decision. Almost all of the interview participants in both rounds one and two of testing felt that they could not come to a definitive choice on the health plans listed. Seventeen stated that they would need information on covered services, 16 would want information on costs (such as premiums, co-payments and medication costs) for each plan, 12 would want information on doctors available in each plan, eight would want information on doctor quality and one stated that she would like information on facility locations (Figure 3). As Table 2 shows, participants felt that more information on types of plans, survey results and other information would enhance the site's usefulness.

Figure 3: Additional Information Requested by Participants

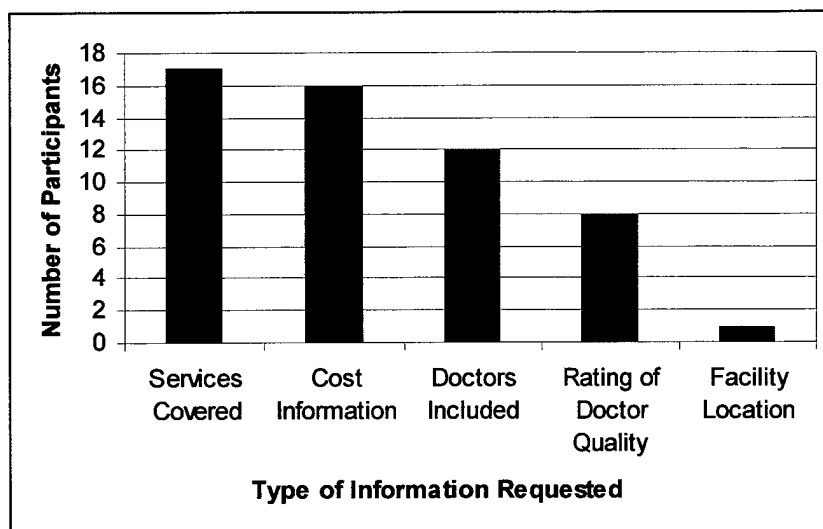
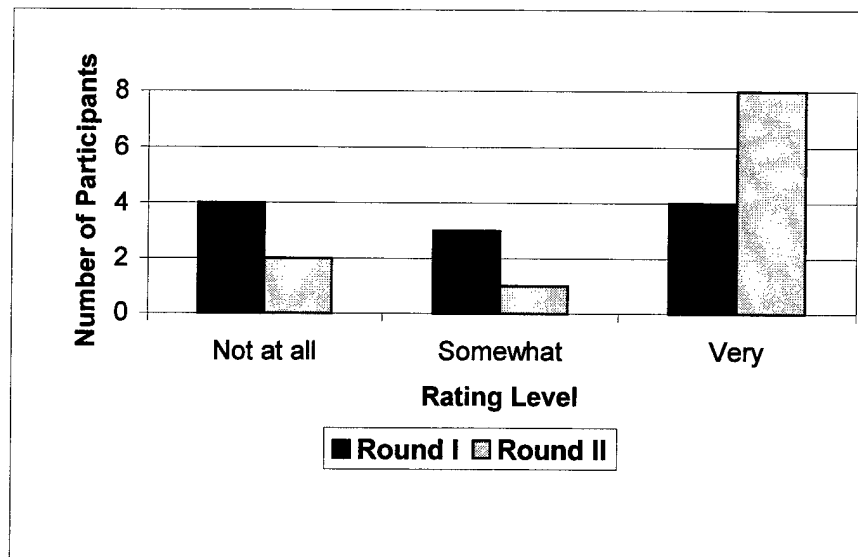


Table 2: Amount of Information Desired Before Choosing a Plan

Survey Response	Number of Participants		
	Types of Plans	Survey Results	Other Information
Much more	6	1	4
A little more	8	10	9
Right amount	6	7	6
A little less	0	2	1
Much less	0	0	0

During both rounds of testing, participants were asked to rate the site's usefulness in three broad areas: comparing plans, choosing a new plan and switching plans. For each area, response options were "very useful," "somewhat useful," "slightly useful" and "not at all useful." In judging the site's usefulness for comparing their current health plan and other plans, four participants in the first round and eight in the second round rated the Decision Helper as being "very useful," three in the first round and one in the second round rated it as being "somewhat useful," and four in the first round and two in the second round rated it as "not at all useful" (Figure 4). Seven participants in round one and six participants in round two found the site "very useful" for choosing a plan. Four participants in round one and five in round two found it "somewhat useful" for choosing a plan. Two participants in round one and five participants in round two found the site "Very Useful" if the user was to be switching plans. Nine participants in round one and five in round two found it "Somewhat Useful" when switching plans. One participant in round two found it "Not at All Useful" for switching plans.

Figure 4: Usefulness of Decision Helper in Comparing Your Health Plan to Other Plans



To assess the usefulness of each screen, we had participants rate their impressions of individual screens during both rounds of testing (Table 3). For each screen, participants were asked to rate usability on the same four-point scale used to rate the Decision Helper as a whole, from "very useful" to "not at all useful."

As Table 3 shows, more participants found the "Types of Plans" screen at least "somewhat useful" than found the "Welcome" screens at least "somewhat useful". Many participants stated that they found the "Types of Plans" screen the most useful, because it provided novel and objective information about health plans. The information about HMOs and PPOs was stated simply enough that all participants could comprehend it, yet was complex enough to cover the main differences between types of plans.

Table 3: Perceived Usefulness of Individual Screens

	Not at All Useful	Slightly Useful	Somewhat Useful	Very Useful
Welcome Screen	1 (5%)	3 (15%)	4 (19%)	13 (62%)
Types of Plans	0 (0%)	1 (5%)	6 (27%)	15 (68%)
Survey Results	0 (0%)	3 (15%)	5 (25%)	12 (60%)
Children's Care	2 (10%)	2 (10%)	5 (25%)	11 (55%)
People Who Use Lots of Care	2 (10%)	4 (20%)	7 (35%)	7 (35%)
Summary Charts	1 (5%)	3 (14%)	6 (27%)	12 (54%)
Details Charts	2 (9%)	0 (0%)	7 (32%)	13 (59%)
Review the Results	0 (0%)	4 (20%)	9 (43%)	8 (38%)
Your Worksheet	2 (12%)	3 (18%)	6 (35%)	6 (35%)

Participants found the "Summary" and "Details" screens as well as the survey description screen very valuable. As one woman stated, "you just have to have a screen like this (survey description screen)... if I don't know where the information is coming from and who is being sampled, the actual results don't mean anything." A few participants missed the information on the population being sampled (300 adults and parents in Los Angeles) as well as who conducted the survey (an outside, independent firm). Of note, it was these participants who stated that they did not trust the survey results and would not use the information supplied to help them choose a plan. One participant who missed this information stated, "I don't know who put out this information, it could be the health plans or the employer who will give you biased information. If I knew that it was a reputable source that supplied

this data, then maybe I would use the information to make a choice." After the information about plan sponsors and participants was brought to the interviewee's attention, she felt more comfortable selecting a health care plan based on the website information.

Overall, participants in both rounds of testing found the "Review Your Results" and the "Worksheet" screens to be the least useful. These two screens had the most revisions done as a result of feedback from the first round of testing. However, even after revisions to these screens were made, round two participants felt that the interactive nature of the screens was not clear, and they were frustrated that these screens did not provide objective information on each of the plans. After round one, a pop-up window was added for the "Review the Results" screen explaining that the answers the user provided on this screen would appear later on the "Worksheet." Though the pop-up window made clear how to input information onto the "Review the Results" screen, participants felt that the screens would be more useful if they could input personal information or were provided with information on actual doctors, costs and benefits.

The "Summary" chart that presented comparative plan information and the "Details" charts that summarized absolute results were central to the Decision Helper. Therefore it was essential that participants be able to understand and use them. Participants realized that the "Detail" charts contained more information, but they felt that it took more effort to extract this information than it did to glean information from the "Summary" chart. For those who wanted a quick comparison between plans, the "Summary" chart was seen as easier to access and comprehend. However, many participants mistakenly thought that the stars in the "Summary" chart represented direct ratings of each plan rather than simply a comparison of where each plan stood in relation to the survey average. Because participants differed in their preferred modes for how the information should be presented, there is justification for presenting the results in both star chart and bar chart formats.

INDIVIDUAL SCREEN RESULTS

In this section we describe participants' reactions to the individual screens. For each set of screens, we present the results in the following order: comments of first round participants, changes made as a result of these comments, reactions of second round participants, and summary of overall screen usability.

SPLASH AND INTRODUCTORY SCREENS

During the structured interview, participants reviewed the site screen by screen with the interviewer. Participants began with the first screen, the "Splash" screen, and were asked their impressions of the photograph. During the first round of testing, we asked participants for opinions on the photograph displayed in the version initially tested (see Appendix 3). We expected that parents especially would identify with this photograph, which showed a mother and daughter. However, the only participants who strongly identified with the photograph were two African American mothers. Rather than identifying with the family theme in the photograph, these participants thought that African Americans were being targeted by the website, which increased their interest in the site's contents. Other first-round participants commented on "the warm smile of the people on the front screen, the uncluttered nature of the screen and the simplicity of the screen." One of the study participants who did not like the "Splash" screen reported that she didn't feel that "the picture of a happy, healthy looking mother and daughter duo should be the introduction to a site on health care. There should be pictures of everyone who uses health care, both sick and healthy people."

Although no changes were made to the "Splash" screen between rounds of testing, each participant in the second round of testing was shown the original "Splash" screen and an additional 14 possible screen pictures (see Appendix 5). The original screen displayed a woman holding her daughter and smiling. Other screens included pictures of doctors and families and scenes from both medical and everyday contexts.

A majority of the second-round participants preferred Photo G- a photo of a woman, her child, and a doctor examining the child. A number of participants also preferred a photograph of an infant being examined by a doctor. (Many of the comments reflected a preference for the picture to be focused on health services rather than on the family, because site users would have different family situations but would all identify with a medical setting.)

Participants in round one recognized that the "Welcome" screens outlined the site structure and the target audience. "The description on this screen makes it easy to compare it to that text on the left side of the screen (Contents Box)." As identified earlier, some participants felt that the Contents Box needed to be better explained as the user was being introduced to the site. "You don't know where to go from here. There needs to be some explanation of how to get around the site. I can see the forward/back keys, but I don't see any other way to get around." Participants did have some difficulty identifying the links on the "Welcome" screens. They confused the bold black text with links and were confused when clicking on this text did not elicit a computer response.

As a result of participants' comments on the usability of the "Welcome" screens, the revised version tested in round two included two "Continue" links that led users to the next screen. Additionally, the round two "Welcome" screens were more comprehensive in describing what information could be found on the site and re-iterated the fact that the survey was done by an independent research organization. However, reactions to the revised "Welcome" screen in round two testing revealed little change in participant responses.

In terms of the overall usability of the "Splash" and "Welcome" screens, participants were able to determine how to move throughout the site. "Splash" screen usability was simple--a large yellow arrow with the word START under it, indicating where participants would move to next. Participants found the "Welcome" screens to be usable as an introduction to the site, but even after more explanatory text was added, participants commented that more text on how to navigate and on

the interactive nature of the site and the various site sections would have been useful.

TYPES OF PLANS

The "Types of Plans" screens were a critical component of the website. This section helped those participants who were privately insured to better understand the costs and benefits of using HMOs versus PPOs. In evaluating the information offered on HMOs and PPOs, participants felt that the information provided was generally accurate and comprehensive in orienting people to the differences between these two types of health systems. The "Types of Plans" screen was one of the two screens that changed depending on whether the user was insured by Medicaid or a private company. Those who were privately insured were presented with information differentiating HMOs and PPOs. Those who received Medicaid were simply given more information on "What Is a Managed Care Plan?"

During the first round of testing, participants felt that the "Types of Plans" description of in-network and out-of-network costs was clear and also necessary information for participants to understand when trying to choose a health plan. "I really liked the way that this screen did a side-by-side comparison on HMOs and PPOs, but it could have been clearer if the HMOs and PPOs were also compared on specific points such as costs, convenience, in-network vs. out-of-network costs." Yet, participants also stated that the structure and language in the screen could be improved. "You can see here that some of the information is repeated. In both the HMO and PPO sections it states that 'You may also receive better coverage for some services, such as preventive care.' How can that be the case for both?" Participants had additional questions on the validity of the screen content. For instance, the stated advantages of HMOs include having very little paperwork and co-payments of typically \$10. As one participant said "There needs to be more cost information to make a statement like this. We need to know about co-payments in the PPO category and other costs that are factored in to having one of these two types of plans."

No significant changes were made to the "Types of Plans" screens during the second round of testing, for either the privately or publicly insured versions of the site. As one round two participant said, "I think that this pretty much sums up some of the main differences between HMOs and PPOs, but most people coming to look at a plan will probably have enough experience with one of the two types of plans to automatically choose one or the other." Participants in round two reiterated the suggestion that statements made about HMOs should be compared to information about PPOs. Participants stated that they would have liked more information on types of plans before making a final decision on a plan (Table 2).

SURVEY DESCRIPTION AND TOPICS

Participants felt that the "Survey Description" screen was critical to the site's credibility. Understanding who conducted the survey, who the survey respondents were and where they were located was valuable to all of the interviewees. Establishing trust in the survey was necessary for participants to find the graphs and charts valid and the information personally relevant. As one participant said, "I had better trust where this information is coming from or else I won't believe it." Unfortunately, many of the first round participants did not believe that the survey was done in an objective manner. Four participants in round one stated that the company sponsoring the survey of its employees had the opportunity to change the results to favor a certain health plan. After looking through all of the survey information, participants were asked to recall who conducted the survey and how many people participated in it. Although this information was clearly stated on the "Survey Topics" screen, five of the round one participants could not recall the number of participants and four could not recall who sponsored the survey. After reviewing the screen, participants were asked who they felt paid for the survey. Seven interviewees felt it was paid for by an independent research organization, two thought the health plans paid for it, and one didn't know. Additionally, when round one participants were asked whether the survey results were accurate representations of what the health plans

were "really like," four said that they were not, four didn't know, and only three thought that they were. After they understood that an independent research group conducted the survey, several participants said they liked the fact that the information was coming from a consumers' rather than a health plan or employers' point of view. As one woman said, "It makes a big difference where we think that the information is coming from. If it's from my health plan I'm less likely to trust it than if it is from a real research group."

To increase the trustworthiness of the survey results, participants suggested that information on the survey sponsor and the demographic make-up of the survey participants should be more clearly stated on the screen, either by placing this information in bold, or by moving it to the top of the screen. If the demographic characteristics of the sample were made clear, participants felt that they would be more likely to get an accurate picture of how their own experience with their health plan was likely to compare with that of the survey participants. An additional suggestion was to improve the description of the survey population. Some participants were unsure whether the 300 adults mentioned on the "About the Survey" screen evaluated each of the health plans or only one plan, and how many survey participants rated each topic in each health plan. Two participants mentioned that they would have liked the health plans to be rated by physicians as well as patients.

In order to emphasize that the survey was done in an objective manner, the information on who conducted the survey and how it was done was moved to the top of the "Survey Results" screen in the revised version for the Decision Helper. The text explaining the survey was made more visible by increasing text spacing and increasing text font. The fact that the survey was conducted by an independent research company and not by the health plans was added to the "Welcome" screen. We did not, however, change the actual description of the survey.

The changes made to the "About the Survey" section of the site improved users' understanding of who the survey respondents were. Eight of the eleven round two participants were able to describe the number of survey respondents and show where this information had been presented on

the site. Unfortunately, the changes did not seem to help participants understand that the survey was conducted by an independent research organization. Three of the eleven round two participants thought that the health plans sponsored the survey, five thought that an independent research organization paid for the survey, two thought a government agency paid for it, and one did not know.

Each of the participants in both rounds of testing thought that the survey topics were important issues pertaining to health plan choice. The "Survey Topics" screen served as an introduction to the seven health plan issues that would be discussed throughout the site. The only problem that first round participants had with this screen was difficulty in seeing the on-screen links that would lead to either the "Summary" or "Details" screen. As a result, these links, like all others throughout the site, were changed from black to blue so that they would be more visible.

OTHER SURVEY RESULTS

The "People Who've Used a Lot of Care" and "Children's Care" screens were used much less frequently than the screen showing the survey results for adults. There may be several reasons for this. Participants mentioned that categorizing children's care and frequent care under "Other Survey Results" made it seem as if these topics were less important or that these sections would simply review the results that had already been presented. As a result, visits to these screens using the Contents Box were limited. In addition, if participants went to the "Other Survey Results" screen using the arrow keys, they were likely to miss the on-screen links to the "Children's Care" and "People Who've Used a Lot of Care" bar graphs.

Additional concerns were raised about how "People Who Have Used a Lot of Care" was defined. All eleven of the first round participants felt that three physician visits per year did not constitute "a lot of care". Participants suggested that the survey title be changed to more accurately reflect the amount of care survey respondents reported. Although none of the round one participants or anyone covered on their health plan needed a lot of care, several stated that if it had been

more clear what information would be presented on this screen, they would have viewed the screen. As one participant observed, "These people really know what the plans are like because they use them a lot. I would probably trust these graphs more than the others." Navigation to the "Children's Care" screens was fraught with problems similar to navigation to the "People Who've Used a Lot of Care" screen. Not surprisingly, the participants who felt the "Children's Care" screen was most useful were those who had children. Three participants mentioned that they thought that screens targeting specialties were a good idea. As one woman said, "I would really like it if I could personalize the site. For example, if I could choose information on oncology, AIDS care, or gynecological services and the ratings would show how the health plans supported these types of services."

As mentioned previously, changing the format of the Contents Box significantly improved navigation, usability and usefulness of the "Children's Care" and "People Who've Used a Lot of Care" screens. Because the second version of the Contents Box listed both screens rather than listing them under the sub-heading of "Other Survey Results," participants had an easier time locating these screens. Additionally, "People Who've Used a Lot of Care" was changed to "People With 3+ Visits" in the revised version. In terms of usefulness of these screens, participants in the second round expressed similar sentiments to first round participants. Individuals with children found the "Children's Care" screens most useful, and many participants felt that the "People with 3+ Visits" was especially useful because these people would have ample experience in dealing with physicians and health plans.

SUMMARY AND DETAIL CHARTS

Overall, users found the "Summary" charts to be more usable but less useful than the "Detail" charts. Although people presumed that the stars were used to rate the plan characteristics rather than to compare them to the survey average, they felt that the "Summary" charts were easier to read, understand and use. Participants felt that they could understand the "Summary" charts without extra instruction.

Consequently, although 16 participants missed the "What Do the Stars Tell You?" screen, 13 felt that this screen was not necessary.

Web site users found the bar graphs on the "Details" screen more useful than the "Summary" star charts and more integral to understanding the survey results. Five of the 22 participants did not understand whether the graphs were charting all of the characteristics of all of the plans (a comprehensive percentage rating of each of the plans on overall qualities) or each of the bullet points for each of the plan characteristics (e.g., under the doctor communication rating, the bullets would be doctor's ability to communicate clearly, spend enough time with the patients, show respect for patients, etc.). Yet once they understood what the bar graphs were showing, they found the information more valuable, stating that the "percentages quantified people's opinions" and that the "bar graphs were more useful because they gave specific numbers rather than averages."

One aspect of the website that could have led to the bar graphs being seen as more difficult to use and understand was that five of the round one and two round two participants missed the on-screen link to the "What Do the Bar Graphs Tell You?" due to difficulty locating the links to this screen. When interviewees were exposed to this screen, all but one said that they would have found this information useful, as it explained how to read the bar graphs as well as how the star chart and bar graphs were connected. Two participants were unsure whether the star charts and bar graphs were both using data from the survey; this screen clarified this point.

When comparing the usefulness of the "Summary" and "Detail" charts, 12 users preferred the "Detail" charts, and 10 preferred the summary charts (See Figure 5). In order to combine the best aspects of these charts, two users suggested combining the two by having a single chart with all the bar graph percentages.

REVIEW THE RESULTS SCREEN

The "Review the Results" screen was key to helping users summarize the most personally valuable information presented on the site and to input this information for use on the "Your Worksheet" screen. In Round

I, eight participants were able to tell the difference between the "Review the Results" and the "Summary" screens at first glance. There were three separate components to this screen: plan evaluations, a summary table, and a total stars composite score. Because participants had been presented with the "Summary" charts, which used stars to evaluate plan quality, they were confused about the difference between the "Review the Results" and "Summary" screens. Additionally some participants did not realize that if they clicked the "Click Here" button, plan quality results would be summarized. Additionally, participants did not feel that the purpose of inputting information was explained. As a result, these participants did not realize that the "Did the Plan Do Well..." questions would link to the "Worksheet" screen.

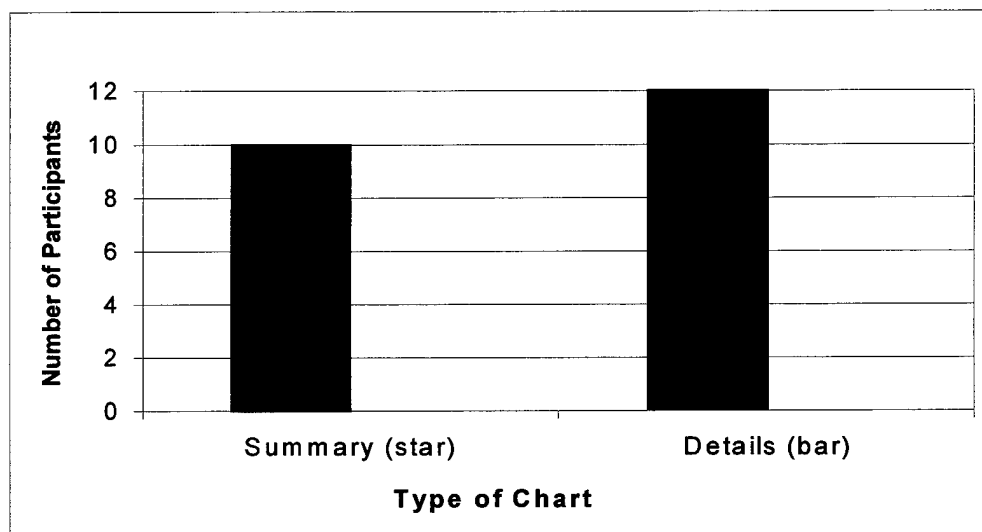


Figure 5: Participant Preference of Star versus Bar Charts

When discussing usability issues, some participants stated that Internet users seldom needed to read instructions to figure out how to navigate through an individual screen. As a result, people were less likely to take the time to read screen instructions. When re-examining the "Review the Results" screen, some participants hypothesized that, because of the shaded background, they were less likely to notice the instructional text. Seven of the participants did not realize that their answer on the "Did the Plan Do Well..." question would link to the

"Your Worksheet" screen. These people found the Review the Results screen valuable and appreciated that they could personalize some of the screens. Yet even these participants mentioned that the link between responses on the "Review the Results" screen and the "Worksheet" screen should be made clearer because it could easily be missed.

Some participants did not see why it was necessary to use the "Click Here" button to find the total number of stars. They felt that the star totals should be automatically presented on this screen. However, three participants stated that it was detrimental to the health plan decision-making process to have the total number of stars for each plan available. If totals are presented, individuals will be less likely to explore each of the topics that made up the total score. Users will be tempted to choose a plan based on total score rather than examining and weighting the value of each health plan characteristic. As one participant stated, "By just giving people the total score, they won't look at all of the components that make up that score."

To remedy problems with the instructions on this screen, the web designers inserted a pop-up box that appeared with the "Review the Results" screen. This box included information on the interactive nature of the screen (results would link with the "Your Worksheet" screen). Participants had to click on this small screen and answer the questions on the "Review the Results" screen to move onto the next screen. Although participants with more computer experience and those who were able to see the links on the "Review the Results" screen found this pop-up box somewhat annoying ("It reminds me of those advertising boxes that always show up on websites"), these pop-up screens aided some users in better understanding and utilizing the "Review the Results" screen. Participants with less experience especially appreciated the pop-up box, saying that the instructions "made it clear what I had to do on the screen."

Only two of the first-round participants found this screen (without the pop-up instructional boxes) very useful, versus six of the second-round participants. Six of the first-round and three of the second-round participants found the screen somewhat useful. Two of the

first-round and two of the second-round participants found it slightly useful (see Figure 6).

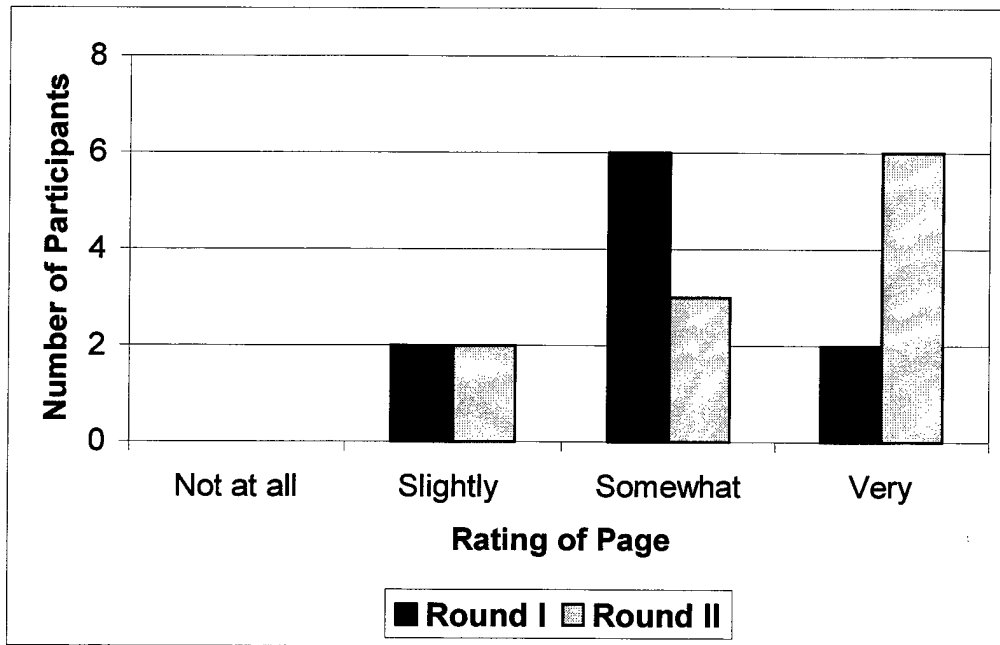


Figure 6: Usefulness of "Review the Results" Screen

YOUR WORKSHEET

Navigation to the "Your Worksheet" screen was relatively easy for participants in both rounds of testing. Because participants could utilize the Contents Box or the arrow keys to reach this point in the site, none skipped the screen during their free exploration. Participants thought it was very beneficial to have a worksheet screen on which their reactions to the site and their thoughts on health plan quality could be placed. Yet they would have liked the ability to complete the boxes on the "Worksheet" screen with their own information to make the screen more interactive and more personal. Ten of the 22 round one and two participants stated that they would like to be able to enter notes on the plan characteristics alongside the "Your Worksheet" plan ratings. "It would be great if I could make notes to myself about these different plans and it seems like that is the purpose of the "Worksheet" screen. But we can't write on the screen!!"

In the first round of testing, some participants were confused by the underlined question marks on the "Your Worksheet" screen. Because a

majority of the participants did not respond to the interactive questions on the "Review the Results" screen, either on the general or "Other Survey Results" screens, the question mark signified that there was an unanswered topic. A pop-up box was added to the "Worksheet" screen to help users understand that the question marks are actually on-screen links. The text on this screen explained the use of links to personalize the "Your Worksheet" screen and the fact that the links would bring participants back to the information that they did not complete on the previously viewed screens. About half the interviewees stated that they would print out the "Worksheet" screen if they were using the Decision Helper to choose a health plan. Others felt that the screen's usefulness was limited unless it could be made more personal.

DOCTORS, COSTS AND BENEFITS

Thirteen of the 22 participants did not see the "Your Worksheet" screen's on-screen links to information on doctors, costs and benefits. Changing the color of the links to stand out from the text helped users in round two to see and utilize them. During the screen-by-screen website assessment, ten of the interviewees were initially disappointed with the "Doctors," "Costs" and "Benefits" screens. They had expected specific information about the doctors that the plan offered, specific costs such as for tests and prescriptions, and benefits covered by each plan. However, after reading the screens, every participant agreed that the information was valuable, easy to read, and provided crucial information to consider when choosing a health plan. "This was the best part of the whole site," said one participant. "These are the questions that people should be thinking about when choosing a plan. This is concrete information that I can use no matter what type of health care I choose." Participants appreciated the objective nature of the information because they were able to apply it to their current plans and their future health plan decisions.

GETTING MORE INFORMATION

From the "Your Worksheet" screen, users had little trouble navigating to the "Getting More Information" screens. The participants felt that the suggestions for users listed on these screens were, on the

whole, very reasonable. Going to visit one's doctor's office and talking to one's doctors were felt to be necessary when making an educated health plan choice. Ten of the first- and second-round participants stated that they would have preferred being linked to the health plan websites rather than just being given the plan phone numbers. They would have found it especially useful if they could enroll in their selected health plan on-line. In this way, they would be able to avoid "the most awful part of the health plan decision process...waiting on the phone for the health plan operators."

Site users felt the questions listed on the "Making Your Choice" screen were important. Yet because the website encouraged users to consider the logistics of different plans participants once again reiterated the need for more factual plan information. For example, "Which plans have doctors you like?" and "Which plans can you afford?" were questions that need to be answered when choosing a plan, but these questions were not answered by the information provided on the site.

Users particularly appreciated the "Getting More Information" screens because the questions could be applied to the current health care decision-making they were doing. Understanding what to look for when choosing a plan was information that they could take from the interview and use in their everyday life. As one participant said, "Those are good questions to ask and ones that I hadn't really thought of before."

The "Summary" and "Detail" screens are designed to help users make a more informed decision than they might otherwise have been able to make about the best health plan for themselves. Participants mentioned information on hospital locations, co-payments, difficulty in getting referrals, and quality of specialists as information needed before making a final plan decision. Yet even without this information, 16 of the round 1 and 2 participants felt that they could eliminate certain plans using only the information given on the Decision Helper.

CONCLUDING REMARKS

To assess the usability and usefulness of the Decision Helper version 2.0, we solicited the reactions and opinions of 22 individuals. Eleven individuals who participated in the first round of usability testing helped us to identify a few key elements that needed improvement. This included making site navigation more obvious and more fluid, changing aspects of site design including background, font size and text color, explaining the interactive nature of the site, improving some of the language used, and adding more objective information.

The overall site design and navigation tested well, and improvements were made on just a few of the areas noted: the Contents Box and links were given more explanation and made more obvious, the background colors and font were changed to be more aesthetically pleasing, more visible, and easier to read, and pop-up boxes were added on two of the screens to explain the interactive nature of those portions of the site. We were not able to address all usability problems identified in the first-round of testing, either because the CAHPS® template did not allow for information to be added or because the content needed to remain consistent with other CAHPS® reporting materials. Though we did expand on certain areas of the tool's content, adding more explanations and highlighting important text, we did not change the core content of any screens.

Participants found the limited amount of information on the site frustrating. Although they understood the site's objective and could navigate through it fairly well, they felt they would have had a difficult time using it to choose a health plan. Without information on the doctors, costs and benefits of the specific plans, none of the participants felt that they could draw conclusions on the best plan for them. In the absence of this information, participants felt that the "Your Worksheet" screen had limited value, merely serving to emphasize the frustration of not being able to use the site to pull together all the relevant information. Although participants were able to rate plans based on the topics they found most relevant, they were not able to

integrate CAHPS® survey information with other plan-related information in making a health plan decision. Because employers do not all have the same type or amount of information available, a template for how such information should be included in the Decision Helper would be of limited value. Accordingly, we tested a version of the Decision Helper that included only CAHPS® information. However, the web site has been designed in such a way that additional information on benefits, costs, doctors, and HEDIS or other quality measures can be added with relatively little modification to the parts designed to present CAHPS® information and provide decision support for choosing a health plan. Employers can and should make the site more useful by including as much information as possible bearing on health plan choice.

An additional finding was that having basic Web experience appears to be critical for utilizing the full potential of the Decision Helper. Our revisions did not include any attempt to make the site more usable for those without computer experience, and we are not at all confident that such an attempt would be successful. First and second round participants who had not used the Web did not feel comfortable using the computer as a medium to make health care decisions. The barriers to successful use of the Decision Helper by those without computer experience are sufficiently formidable that it is probably wise, as a practical matter, to provide only print-based informational materials for consumers in this category.

APPENDIX I. ROUND 1 PROTOCOL

Task 1: Interviewer asks subject to freely explore Decision Helper, as she would if comparing health plans. Interviewer is an unobtrusive observer and ready to answer questions. Interviewer takes notes.

(approximately 30 minutes)

Task 2: Interviewer asks subject to comment on any and all aspects of the site. If necessary, prompt with "what did you like or dislike about individual screens or the site as a whole?"

(approximately 30 minutes)

Task 3: Interviewer conducts structured interview. Interviewer first asks subject about individual screens, then overall site.

(approximately 35 minutes)

Task 4: Interviewer asks subject to complete written questionnaire.

(approximately 20 minutes)

Subject # _____

Start time _____

End time _____

Computer station _____

Hi, my name is Mina Kimmerling and I work for the RAND Corporation, which is a research organization. Today, I'm going to show you a website which is used to help people compare the quality of health plans. I'd like to get your reactions to this website, which is called "Decision Helper."

I'm going to ask you to look over the website and then I'm going to ask you a series of questions about your impressions. I want you to know that there are no right or wrong answers. This is not a test of your abilities, but is a test of the computerized decision helper. From time to time I may interrupt you to ask you a few questions. We want to know what you like and dislike about the Decision Helper, so that the people who designed it can improve it. We're going to spend about 90

minutes looking through the site, depending on how you use the Decision Helper. If you need to take a break at any time, let me know. We want to learn what you think can be improved, especially the parts that are the most confusing or the most easy to understand. So please be very honest in your answers.

I want to reassure you that we will keep the information you give us confidential. Your name will not be written in my notes. Your name will not appear in the report we write summarizing these test sessions. You have the right not to answer any question and you are free to stop participating at any time. Of course, I would like you to participate to the fullest that you can. I'd like you to use it as you would in your own home or office to choose a health plan for you and your family. Before we begin, let me just go over a couple things on the computer (If needed show R how to navigate screens, use mouse, etc.)

Let me also ask you a couple questions.

Do you have children that are covered by your health plan?

Do you have anyone who needs a lot of care covered by your health plan?

Today's interview will take approximately 2 hours. Our session today will have three parts. First, I'm going to have you look through the "Decision Helper" website as if you were using it to choose a health plan for yourself. After you have looked at the site, I'm going to go through the site with you and get your impressions on each screen. I also want you to share with me any ideas, questions or suggestions that you might have about any part of the decision helper website.

It is important that we hear what you are thinking, what you see, and how useful you find each screen. I'd like to hear what you think about each section of the site after you have had a chance to use it. So as we begin why don't you go give me your spontaneous reactions and candid thoughts to each screen. As you look through the site, you can read

each section as if you were going through a restaurant menu, talking out loud about the specific and general aspects of the site that you notice.

FREE EXPLORATION

Take as long as you want to go through the site. You don't have to go through the site in any particular order. Take as long as you want to go through the site. You don't have to go through in any particular order. Just use your judgment and let me know why you skip around and what type of order you are going in.

Are you ready to begin? Okay, you'll start on the Splash Screen, which is the one already loaded.

Mark Begin Time _____

Interviewer should unobtrusively observe and take notes on subject's reactions to website.

Amount of time spent on:

- Introductory screens

- Star explanation
- Star screens

- Bar explanation
- Bar Screens

- Child Care information
- "People who've used a lot of care" information

Is there a screen participant spends a lot of time on? (ASK PERTINENT FOLLOW-UP QUESTIONS)

Seems particularly confused by?

Continuously flips back and forth to?

Glances at, but skips over?

Seems to miss?

Is there a part of the screen that eyes are immediately drawn to?

Is there an obvious sequence to participant searching patterns?

Note order of screens

Navigation techniques-what do they use to get around the site?

Does participant make use of the final screen?

Flip to see total number of stars?

Mark which items they find most useful?

Use the final tally sheet for gathering more information?

Mark End Time _____

UNSTRUCTURED INTERVIEW

I'd like to begin by having you give your overall impressions of the site. What you liked, what you didn't like, etc.

After a participant gives general overview, proceed with these questions:

1. Overall, was it easy or hard to use?
2. Overall, useful was the information?
3. What did you like most about Decision Helper?
4. What did you like least?

5. Do you feel like you learned a lot by going through it? Was the information useful?
6. Do you think that this is the type of site that you would have to go through a few times to get the most out of it? Is it difficult to use?
7. After looking through the entire site how important is this survey information to you in deciding upon a health plan?
8. Who do you think would use this site? Is this site easy to use without explanation or do you think that doesn't have computer experience would have a hard time using it?
9. What would make it easier to use?
10. What could you see people using the site for in terms of comparing plans, learning about different types of plans, choosing a plan?

STRUCTURED INTERVIEW

Now, we're going to go through each of the screens of the website. I want to walk through the site going from screen to screen in the order that you went through it. On each screen, I'd like you to mention anything you found especially confusing or especially useful. I'd also like you to tell me what you think the purpose of each screen is, or what information is being conveyed. (At the end of each section ask if there is anything else they would like to add or any questions they may have.)

(Note what navigation tools participant uses to move from one screen to the next.)

(See if people click to expand on the major topics to see subtopics or just move on to next major heading. Check if this is a reason that they are skipping screens.)

Questions

For all screens that participants missed go through how they could have gotten there and whether this was a screen that they would have found useful.

Splash Screen

1. What is your overall reaction to this screen? What things did you notice about it?
2. The screen says, "A Guide to Health Plan Quality from the Consumer Point of View." Did you notice that? What did it mean to you?
3. What do you think about when you look at the picture on this screen? Did you wonder whether the people are connected to the Decision Helper in some way?
4. Say you were just browsing on the web and came to this screen. After looking at it, do you think that you would click "start" to see more, or would you be more likely to continue browsing? Why?

Welcome section

1. What did you look at on this screen? What information did you get from it?
2. What does the information in this box (point to table of contents) tell you?
3. Did you use this list to help you navigate around the site (as a menu)? How confusing was it to use?

4. How clear did you find the information in the table of contents? Did you understand that you could switch web screens by clicking on a topic?
5. Did the content of the screens reflect their description in the table of contents. For example was the "Review the Results" screen what you expected?
6. Were the topics covered the ones that you find useful in choosing a health plan?
7. After looking through the entire "decision helper" website do you think that the first three screens are a good introduction to the entire site or is there something else that you would like to see?
8. After looking through the entire site, do you think that the survey description accurately explains the survey of the different health care organizations?
9. Who conducted the survey? What does that mean to you? Is it important in some way?

Navigation tools

1. What tools did you use to navigate around the site? Was it easy to figure out how to maneuver around the site?
2. What did you use these arrows for? Is it clear that they are used to get around the site?
3. Is it clear that if you click on the **next** keys you can move around the site.

Types of plans

1. Have you heard the terms listed on this screen, like HMO and PPO before?
2. How does the information on this screen compare to what you already knew about these topics?
3. Do you think that the information on this screen is accurate?
4. Do you think that this screen provides you with enough information to know the differences between health plans?
5. What type of information would help clarify the differences listed on this screen?
6. Was it important to you to understand these differences when choosing a health plan?
7. Are the advantages and disadvantages of each type of plan useful to your decision making process?
8. Is there anything on this screen that screen is confusing, such as the screen layout or the language used?
9. Was it easy to find this screen while navigating around the site?

About the Survey Screen

What parts of this screen did you read? What do you think the information on this screen is supposed to do?

1. What did you want to know about the survey? Does this screen tell you that?

2. The section at the bottom is headed "Can you trust these survey results?" Does the text underneath tell you what you want to know about that? Why or why not?
3. How important is it to you to know how the survey was done?

Survey results screen

1. How helpful were the survey results in choosing a plan?
2. Is this screen clear in explaining the survey and the participants in the survey?
3. Do you feel that your experiences with a particular health plan will be similar to the experiences of the survey participants?
4. Did you use other people's experiences in helping you make a choice?
5. Do you see a difference between this screen and the reviewing the results screen?
6. Was it easy to find this screen while navigating around the site?

Survey Topics Screen

1. What did you think this screen was for?
2. Did you read the list of survey topics that people were asked about? Which of these topics are ones that you would expect to be covered in this kind of report about health plans? Which ones would you expect not to be covered?
3. Are these seven topics covered on this screen, the most important topics to you in choosing a health plan?

4. If No, what topics would you like to see added? Any you would like to see dropped?
5. Do these topics have different levels of importance to you? Did you go through the different topics by looking at which was the most important to you?
6. Are the categories mentioned too broad, too specific, unclear (etc.)?
7. At the bottom of the screen it says that you can see the results in two formats? What did this mean to you? Did you feel like you knew what you were choosing when you clicked on "Summary" or "Details"?
8. Why did you choose to go to summary (or details) screen first?

(Note whether participant goes to summary or details screen first. After going through the first of the two, do they return to this screen to see the second? If they don't, do they ask for more information? Note what navigation tool participants use to move to survey summary or details. This section may be where many people skip sections.)

9. Was it easy to find this screen while navigating around the site?
(If people have skipped this screen, show them how they skipped and ask whether this was intentional.)

Summary screen (Stars)

Note: At what point, if any, participants click on the "what do the stars mean screen." How much time is spent on this screen relative to details screen, survey topics screen and types of plans screen? How much time do participants spend looking at star meanings on top right hand of screen?

1. What is this screen supposed to do? How would you use this information?

2. Do you see where it says "What do the stars tell you?" Can you tell me in your own words what you think the stars tell you?
3. When you look at the results listed on this screen, do you compare looking at both PPOs and HMOs or did you look at the plans separately?
4. What did the number of stars tell you about each health plan in relation to all other plans?
5. Do you think that you could choose a health care plan by just looking at the information on this screen? If no, what more information would you need?
6. Do you think that the information on this screen needs to be more specific to individual groups (such as children, the elderly, etc.)?
7. How confusing did you find this screen? Which parts were the most confusing?
8. Was it easy to find this screen while navigating around the site?

Details screen (bar graphs)

Note: At what point, if any, do participants click on the "what do the bars mean screen"? How much time do participants spend looking at what do bar graphs tell you screen? (Are they noticing this link?) How much time is spent on bar graph descriptions and bar graph results screen relative to summary screen, survey topics screen and types of plans screen?

1. What do you think this screen was for? How would you use this information?

2. Can you explain to me what each of the different colors of the bar are supposed to tell you?
3. Do you think that you could choose a health care plan by just looking at the information on this screen? If no, what more information would you need?
4. Could you use this information to find plans that you would NOT choose?
5. Do you feel a screen summarizing this information is necessary? Could you make do without it?
6. Do you think that this screen is more or less useful than the summary screen with the stars on it?
7. Do you think that the information on this screen needs to be more specific to individual groups (such as children, the elderly, etc.)? (If they say yes, note whether they look on child care and frequent user information screens)
8. How easy or hard is it for you to understand the information on this screen?
9. Is there anything that is especially confusing or some area that you think could be better explained?
10. Was it easy to find this screen while navigating around the site?

Getting the Care that is Needed

1. Are the topics discussed on this screen clear to you?
2. Are they relevant to the issues you think about when choosing a health care plan?

3. How useful is this information to your decision on which health care plan to choose?
4. How do you think each of the plans relate to each other in terms of quality of care in this area (can you tell which is the best, which is the worst, etc?)
5. Do you think that the information given by the survey data on ability to get care that is needed, accurately reflects the reality of getting care that is needed?
6. How does the information on this screen alter or effect choosing a health care plan?
7. Was it easy to find this screen while navigating around the site?

Review the Results

1. Do you feel that having the stars and bars (summary and details sections) are both necessary to you choosing an appropriate health care plan.
2. Which do you prefer? Why?
3. Does that mean that you wouldn't see a difference if one section was removed from the website.
4. (See if choice of health plans is different using only stars or only bars?)
5. How effective is this screen in helping you make a health care decision from this screen?
6. Do you see a difference between this screen and the summary screen? What the difference?

7. Did your plan do well on the areas that are important to you? Was this an important factor in your final decision to choose a plan?
8. How did you decide what areas are important to you?
9. How valuable is the total stars category to you? (Do you people click on this section)
10. How valuable is the "Did this plan do well..." information to you. (Are people using this section?)
11. In choosing your plan did you weight the areas depending on how relevant they were to your life or did you simply choose the plan with the highest number of stars?
12. Was it easy to find this screen while navigating around the site?

Other Survey Results

(Are people going to this screen? Especially people who have children or people who use a lot of care.)

1. Do you think that you would only use this information if you have a child or someone who consistently needs a lot of care?
2. Do you think that the information given on the summary and details screens of the child care information and the people who have used a lot of care information is as useful as the information on the general survey?
3. Would you be less likely to use these survey results after reviewing the original survey summary, details and results?

4. Do you think that these survey topics are the most useful to learn about the benefits of each health care plan to children and people who use a lot of care?
5. Is it easy to find this screen while navigating around the site?

Your Worksheet

1. How likely are you to print this screen out and use it?
2. Would you find the site just as useful without this screen? Why or why not?
3. Did you know that by clicking on the underlined words you can find out more about the particular topics? Is this fact made clear by the format?
4. With this sheet, do you feel like you have enough information to make an informed decision about the best health care provider for you and your family?
5. Did you click on the question marks to help you match the plans to your needs?
6. Does whether the plan is a PPO or HMO matter in your decision-making? Does the site give you more importance on how your plan's status as an HMO or PPO effect the benefits of each health care plan?
7. Is there more information that you need to make a decision after seeing your results on this screen? What? What can be eliminated?
8. Was it easy to find this screen while navigating around the site? Did you click on the doctors, costs and benefits information?

Getting more information, Contact information

1. Does this screen provide you with useful information?
2. Is it new information or things you already knew about?
3. How likely would you be to use this to fill in your worksheet
4. Do the places to call and visit before deciding on a health plan seem reasonable and useful?

(How important is it for you to know the opinions that other people have about the health plans that you can choose from)?

Okay, now I'm going to have you fill out this questionnaire which asks you a little more about the site and also for some basic information about yourself. Do you have any questions or comments?

Mark End Time _____

APPENDIX 2: ROUND 2 PROTOCOL

Subject # _____
Start time _____
End time _____
Computer Station _____

Task 1: Free exploration of Decision Helper. Interviewer is unobtrusively taking notes and is available to answer questions. (30 minutes).

Task 2: Unstructured interview: Participant gives overall impressions on usability and usefulness of site. (20 minutes).

Task 3: Structured interview. Interviewer and participant go through site screen by screen. (40 minutes).

Task 4: Written questionnaire: Demographic and website usability survey (approximately 20 minutes)

INTERVIEW INTRODUCTION

I. Website purpose

- a. Decision Helper Tool-used to help people select a health plan
- b. To be distributed and customized by employer (FFS)

II. Interview Structure

a. Interview purpose

- To evaluate website, not participant's abilities
- Confidentiality
- To make sure that participant knows how to use computer features (this should have been screened for at recruitment)

b. During free exploration section encourage participant to give spontaneous thoughts and impressions of screens

c. Assess key demographic characteristics

- Does participant have children covered by health plan? _____

- Does participant have anyone who needs a lot of care covered by his or her personal health plan?
-

FREE EXPLORATION

Take as long as you want to go through the site. You don't have to go through in any particular order. Just use your judgment and let me know why you skip around and what type of order you are going in.

Are you ready to begin? Okay you'll start on this first screen, which is already loaded.

Mark Begin Time _____

Interviewer should unobtrusively observe and take notes on subject's reactions to website.

Note:

I) Time spent on:

- Introductory screens
- Types of plans information (do they seem confused by HMO/PPO information)
- Whether people use child care/People who use lots of care

II) Search Pattern Sequence

- Screens missed
- Whether all bar screens are reviewed
- Navigation techniques/problems
- Use of Worksheet screen
- Visibility of on-screen links

UNSTRUCTURED INTERVIEW

Gather opinions on:

- Overall ease of use (usability)
- Usefulness of information
- Best/worst aspects of Decision Helper

- Clarity of site navigation and language
- Perceived importance of survey information
- Necessity of instructions for use
- Impressions on appropriate website audience
- Site structure (Survey Intro, Your Worksheet placement)
- After participants have viewed the site can they choose/eliminate any plans?

STRUCTURED INTERVIEW

Now, we're going to go through each of the screens of the website. I want to walk through the site going from screen to screen in the order that you went through it. On each screen, I'd like you to mention anything you found especially confusing or especially useful. I'd also like you to tell me what you think the purpose of each screen is, or what information is being conveyed. (At the end of each section ask if there is anything else they would like to add or any questions they may have.)

(Note what navigation tools participant uses to move from one screen to the next.)

See if people click to expand on the major topics to see subtopics or just move on to next major heading. Check if this is a reason that they are skipping screens.)

Questions

For all screens that participants missed go through how they could have gotten there and whether this was a screen that they would have found useful.

A) Splash Screen

1. Overall impressions of screen: Opinions on "A Guide to Health Plan Quality from the Consumer Point of View" title. Did participant's understand meaning?
2. Impressions of picture subjects (do participant's identify with this picture). Why or why not would this screen draw participants in to look at the rest of the site.

B) Welcome Section

1. Overall impressions of screen
2. Clarity and understanding of text in introducing the site
 - Level of comprehensiveness
 - Explanation of site
 - Validity in how site is presented
 - Is more of an introduction needed to understand structure and navigation?
3. Contents box
 - Ease of use
 - Comprehensiveness of sub-topics
 - Usability as navigation tool
 - Appropriateness as site outline
 - Compare to use of next keys as navigation tool
 - Ease of back and forth navigation through site
 - Usability of on-screen links

C) Types of Plans

1. HMO/PPO description terminology
 - Accuracy
 - Clarification needed
 - Comparison to previous knowledge
 - Value of plan differences in decision making
 - Usability of screen (layout easy to read and compare plans)
 -

D) About the Survey Screen

1. Usability
 - Interviewee ability to pinpoint survey creators, funding sources, and participants
 - Amount of text per screen-what is read/ignored
2. Survey Validity
 - With the information, do participants trust survey
 - More information needed to validate survey methodology
 - Placement within the site structure
 - Importance of trusting the survey when choosing a health plan

- Do interviewees feel that their health care experiences will be similar to survey participants

E) Survey Topics Screen

1. Topics chosen

- Most important in choosing a plan (what to add take out)
- Applicability to participant's health plan decisions
- When going through topics, are they weighted differently

2. Usability

- Ability to understand what defined each topic
- Category breadth (too broad, not broad enough)

(Note whether participant goes to summary or details screen first)

F) Summary Charts

Note: At what point, if any, do participants click on the "what do the stars mean screen"?

How much time is spent on this screen relative to details screen?

1. Usability

- Likelihood of reading screen instructions
- Star instructions (Do people think stars represent comparison to survey average or simple plan ratings-ask participant to give you star meanings?)
- Is "what do the stars tell you" necessary for understanding star chart?
- Are participants comparing across all plans or HMO vs. PPO plans?
- Ease of navigation to summary descriptor screen (noticing on-screen links)

2. Usefulness

- Can health plan choice be made on this information alone
- After viewing summary tables are details tables necessary
- Should information be more specific to individual groups

G) Details screen (bar graphs)

Note: At what point, if any, do participants click on the "what do the bars mean screen"

How much time to participants spend looking at what do bar graphs tell you screen? (Are they noticing this link?)

Time spent on this screen vs. Star chart screens

1. Usability

- Topic definition clarity
- What topics are being graphed (bullet points or more general topics)
- Is it clear that the bar graphs charting one topic each (not all 7 in one graph)
- Understanding of bar graph colors
- Is bar graph explanation screen necessary (can participants find it)
- Usability in relation to summary screens
- Do participants realize that star and bar graphs charting the same survey information
- Ease of screen navigation (ability to go back and forth between this a summary screen)
- Clarity of language

2. Usefulness

- Topics to be added
- Could participant choose/eliminate a health plan by these charts alone (what more information is needed)
- With these charts are summary screens necessary
- Should topics be more specific to individual groups (children, elderly, etc.)

H) Review the Results

1. Usability

- Apparent difference between this and summary screen
- Are screen instructions visible are they used
- Is it apparent that this screen links to worksheet screen
- Are people filling out "this plan did well on topics important to me"
- "Click here"-is it used

2. Usefulness

- "Click here" does it cause people to not look at specific topics, but only look at the averages
- What value does it add to the site
- Useful to have information connect to Your Worksheet screen
- Effectiveness in aiding health care decision
- How do participant's decide which topics to put more weight on

I) Other Survey Results

(Are people going to this screen? Especially people who have children or people who use a lot of care?)

1. Usability

- People viewing on-screen links
- How are they navigating to results screens
- Are these results from the same survey as general survey results-do participants understand survey results

2. Usefulness

- Used only by people with kids/those who use lots of care or all participants
- Value of summary/details screens in comparison to "general survey results"
- Most useful topics to learn about benefits for these specific groups

J) Your Worksheet

1. Usability

- Visibility of on-screen links
- People using the screen correctly (are they trying to type information onto the screen)
- Is this screen at the right part in the site's structure
- Do people see that clicking on question marks will lead them back to Review the Results screen
- Are people viewing screen instructions
- What instructional information needed to make screen use more clear
- Ease of navigation to Your Worksheet and back to other screens
- Likelihood of using Your Worksheet

2. Usefulness

- Does this screen add value to the site?
- With information on this screen, can people decide upon or against a health plan?
- Does HMO/PPO status of a plan effect whether it will be used?
- Is more information needed to make plan useful? What can be eliminated?

K) Getting more information, Contact information

1. Usability

- Is it clear what information will be provided by title
- Is this information understandable
- Likelihood of following recommendations (reasonable requests?)
- Perceived validity of information listed on these screens

INTRODUCE WRITTEN QUESTIONNAIRE. SOLICIT QUESTIONS OR ADDITIONAL
COMMENTS ON SITE

Mark End Time _____

WRITTEN QUESTIONNAIRE

Section A: Usability

1. Imagine that you must choose a health plan right now. Based on the health plan information you looked at today, which health plan would you be most likely to enroll in?

- 1 ☐ Coastal Health Plan
- 2 ☐ Pacific Health Plan
- 3 ☐ Atlantic Health Plan
- 4 ☐ Mountain Health Plan

2. Why would you be most likely to choose this plan? What did you like most about this plan? (check all that apply)

- 1 ☐ Overall, the plan was rated highly by the Decision Helper survey
- 2 ☐ The plan was rated highly on a specific survey topic
- 3 ☐ Other _____

3. Did you use what people said about plans in the Decision Helper to help you decide which plan to choose?

- 1 ☐ Yes
- 2 ☐ No

4. How hard or easy was it for you to choose a health plan with the information you were given today?

- 1 ☐ Very hard
- 2 ☐ Somewhat hard
- 3 ☐ Somewhat easy
- 4 ☐ Very easy

5. With only the health plan information on the Decision Helper, how sure are you that you could choose the plan that is best for you?

- 1 ☐ Not at all sure
- 2 ☐ Slightly sure
- 3 ☐ Somewhat sure
- 4 ☐ Very sure

6. Please rate the usefulness of the following sections of the Decision Helper.

1) "Welcome" section

- 1 ☐ Not at all useful
- 2 ☐ Slightly useful
- 3 ☐ Somewhat useful
- 4 ☐ Very useful

2) "Types of Plans" section (containing information on HMOs and PPOs)

- 1 ☐ Not at all useful
- 2 ☐ Slightly useful
- 3 ☐ Somewhat useful
- 4 ☐ Very useful

4) "Survey Results" section overall

- 1 ☐ Not at all useful
- 2 ☐ Slightly useful
- 3 ☐ Somewhat useful
- 4 ☐ Very useful

5) "Summary" sub-section (containing star chart)

- 1 ☐ Not at all useful
- 2 ☐ Slightly useful
- 3 ☐ Somewhat useful
- 4 ☐ Very useful

6) "Details" sub-section (containing bar graphs)

- 1 ☐ Not at all useful
- 2 ☐ Slightly useful
- 3 ☐ Somewhat useful
- 4 ☐ Very useful

7) "Review the Results" sub-section

- 1 ☐ Not at all useful
- 2 ☐ Slightly useful
- 3 ☐ Somewhat useful
- 4 ☐ Very useful

8) "Children's Care" sub-section

- 1 ☐ Not at all useful
- 2 ☐ Slightly useful
- 3 ☐ Somewhat useful
- 4 ☐ Very useful

9) "People Who Have Used a Lot of Care" sub-section

- 1 ☐ Not at all useful
- 2 ☐ Slightly useful
- 3 ☐ Somewhat useful
- 4 ☐ Very useful

10) "Your Worksheet" section

- 1 ☐ Not at all useful
- 2 ☐ Slightly useful
- 3 ☐ Somewhat useful
- 4 ☐ Very useful

7. Which is more useful (when comparing quality of health plans)?

- 1 ☐ "Summary" sub-section (containing star chart)
- 2 ☐ "Details" sub-section (containing bars graphs)

8. If you could have only the summary sub-section or the details sub-section, which would you prefer to have when choosing a health plan

- a. ☐ Summary sub-section (containing star charts)
- b. ☐ Details sub-section (containing bars charts)

9. Who do you think created the Decision Helper?

- 1 ☐ Health plans
- 2 ☐ A government agency
- 3 ☐ An independent research organization
- 4 ☐ Other (_____)
- 5 ☐ Don't know

10. Who do you think paid for the survey described in Decision Helper?

- 1 ☐ Health plans
- 2 ☐ A government agency
- 3 ☐ An independent research organization
- 4 ☐ Other (_____)
- 5 ☐ Don't know

11. Do you think the survey results described in the Decision Helper tell you what the health plans are really like?

- 1 ☐ Yes
- 2 ☐ No
- 3 ☐ Not sure/don't know

12. How easy or hard was it for you to find what you were looking for on this website?

- 1 ☐ Very Easy
- 2 ☐ Somewhat easy
- 3 ☐ Somewhat hard
- 4 ☐ Very hard

13. Overall, how easy or hard was it for you to understand the information on the Decision Helper

- 1 ☐ Very Easy To Understand
- 2 ☐ Somewhat Easy To Understand
- 3 ☐ Somewhat Hard To Understand
- 4 ☐ Very Hard To Understand

14. Overall, how useful do you think that the Decision Helper would be for

- 1) Choosing a new health plan
- 1 ☐ Very Useful
- 2 ☐ Somewhat useful
- 3 ☐ Not at all useful

2) Switching health plans

- 1 ☐ Very Useful
- 2 ☐ Somewhat useful
- 3 ☐ Not at all useful

3) Comparing your health plan to other plans

- 1 ☐ Very Useful
- 2 ☐ Somewhat useful
- 3 ☐ Not at all useful

15. Did the Decision Helper cover the information that you expected it to cover?

16. Look at the amount of information about "Types of Plans". Which statement below best matches how you feel about the amount of information you would have liked before deciding which plans to choose?

- 1 ☐ I would have liked a lot more information about types of plans.
- 2 ☐ I would have liked a little more information about types of plans.
- 3 ☐ I had about the right amount of information about types of plans.
- 4 ☐ I would have liked a little less information about types of plans.
- 5 ☐ I would have liked a lot less information about types of plans.

17. Look at the amount of information about "Survey Results". Which statement below best matches how you feel about the amount of information you would have liked before deciding which plans to choose?

- 1 ☐ I would have liked a lot more information about survey results.
- 2 ☐ I would have liked a little more information about survey results.
- 3 ☐ I had about the right amount of information about survey results.
- 4 ☐ I would have liked a little less information about survey results.
- 5 ☐ I would have liked a lot less information about survey results.

18. Consider the information that was not in the Decision Helper that you would have liked. Which statement below best matches how you feel about the amount of other information you would have liked before deciding which plans to choose?

- 1 ☐ I would have liked a lot more other information.
- 2 ☐ I would have liked a little more other information.
- 3 ☐ I had about the right amount of other information.
- 4 ☐ I would have liked a little less about other information.
- 5 ☐ I would have liked a lot less about other information.

19. What other information would you have liked (circle all that apply)

- 1 ☐ Services Covered
- 2 ☐ Costs per plan
- 3 ☐ Doctors in plan networks
- 4 ☐ Quality of Doctors
- 5 ☐ Other _____

20. In general, how much time do you spend when making decision?

- 1 ☐ Very long time
- 2 ☐ Somewhat long time
- 3 ☐ Somewhat short time
- 4 ☐ Very short time

21. In general, how much time do you spend when selecting a health plan?

- 1 ☐ Very long time
- 2 ☐ Somewhat long time
- 3 ☐ Somewhat short time
- 4 ☐ Very short time

DEMOGRAPHIC QUESTIONNAIRE (FFS)

1. What is your age now?

- 1 ☐ 18 to 24
- 2 ☐ 25 to 34
- 3 ☐ 35 to 44
- 4 ☐ 45 to 54
- 5 ☐ 55 to 64
- 6 ☐ 65 or older

2. Are you:

- 1 ☐ Female
- 2 ☐ Male

3. How would you describe your race or ethnicity?

- 1 ☐ American Indian or Alaskan Native
- 2 ☐ Asian or Pacific Islander
- 3 ☐ Black or African American
- 4 ☐ Hispanic or Latino
- 5 ☐ White
- 6 ☐ Another race/ethnicity or multicultural (write in) _____

4. What is the highest grade or level of education that you have completed?

- 1 ☐ 8th grade or less
- 2 ☐ Some high school
- 3 ☐ High school graduate or GED
- 4 ☐ 1 - 3 years of college (including associates degree)
- 5 ☐ 4 year college degree or more

5. In general, how would you rate your overall health?

- 1 ☐ Excellent
- 2 ☐ Very good
- 3 ☐ Good
- 4 ☐ Fair
- 5 ☐ Poor

6. Do you have a child who is covered by your personal health plan?

- 1 ☐ Yes
- 2 ☐ No

7. Is there another adult who is covered by your personal health plan?

- 1 ☐ Yes
- 2 ☐ No

8. Do you have someone who needs a lot of care covered by your personal health plan?

- 1 ☐ Yes
- 2 ☐ No

9. What was your combined family income last year (1998-1999)

- 1 ☐ \$0 to \$10,000
- 2 ☐ \$10,001 to \$14,999
- 3 ☐ \$15,000 to \$24,999
- 4 ☐ \$25,000 to \$34,999
- 5 ☐ \$35,000 to \$49,999
- 6 ☐ \$50,000 to \$74,999
- 7 ☐ \$75,000-\$100,000
- 8 ☐ over \$100,000

10. What is the name of your current health plan?

11. How many months or years in a row have you been covered by the same health insurance?

- 1 ☐ 3 months or less
- 2 ☐ 4 to 6 months
- 3 ☐ 7 to 9 months
- 4 ☐ 10 to 11 months
- 5 ☐ 1 to 2 years
- 6 ☐ 2 to 4 years
- 7 ☐ more than 4 years

12. Please rate your overall level of satisfaction with your health plan.

- 1 ☐ Very dissatisfied
- 2 ☐ Somewhat dissatisfied
- 3 ☐ Somewhat satisfied
- 4 ☐ Very satisfied

13. How much time do you spend on a computer during the average week?

AT HOME

- 1 ☐ None at all
- 2 ☐ 0-5 hours
- 3 ☐ 6-10 hours
- 4 ☐ 11-20 hours
- 5 ☐ 21-30 hours
- 6 ☐ 30+ hours

AT WORK

- 1 ☐ None at all
- 2 ☐ 0-5 hours
- 3 ☐ 6-10 hours
- 4 ☐ 11-20 hours
- 5 ☐ 21-30 hours
- 6 ☐ 30+ hours

OTHER (EX. LIBRARY)

- 1 ☐ None at all
- 2 ☐ 0-5 hours
- 3 ☐ 6-10 hours
- 4 ☐ 11-20 hours
- 5 ☐ 21-30 hours
- 6 ☐ 30+ hours

APPENDIX 3: DECISION HELPER, VERSION 2.0 SCREENS-ROUND 1 OF USABILITY TESTING

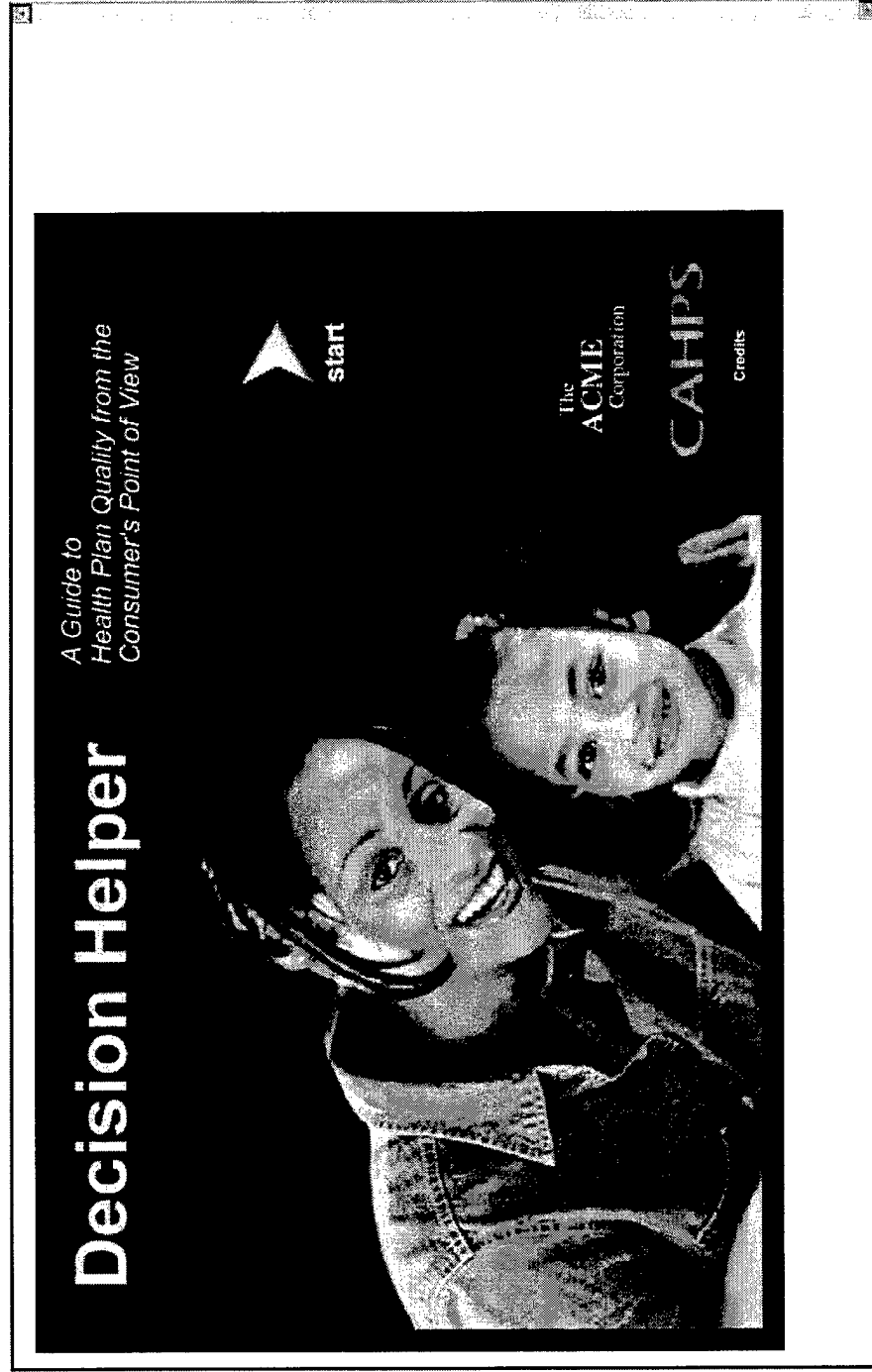


Figure 3A: "Splash" Screen. Round 1.

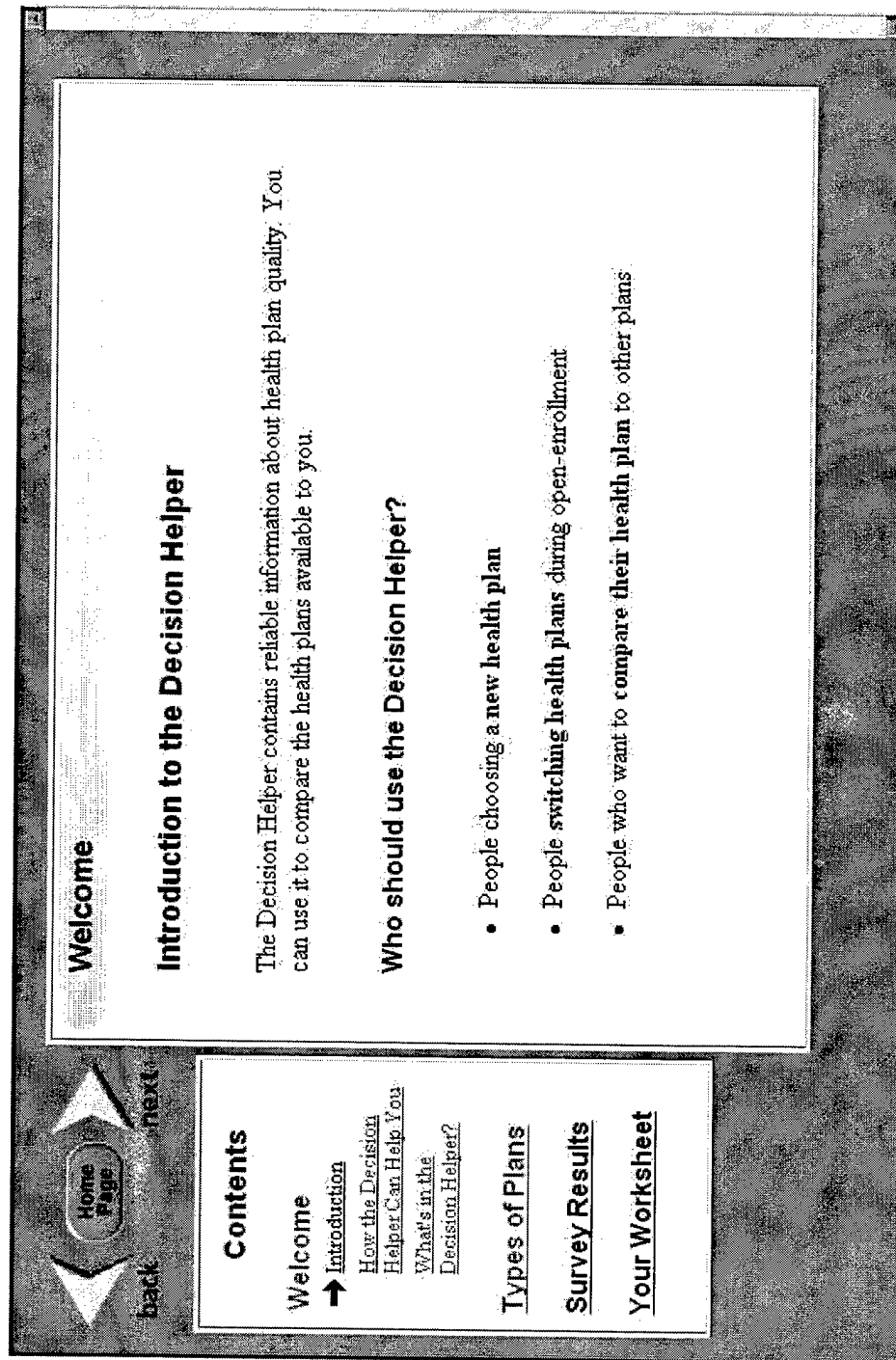
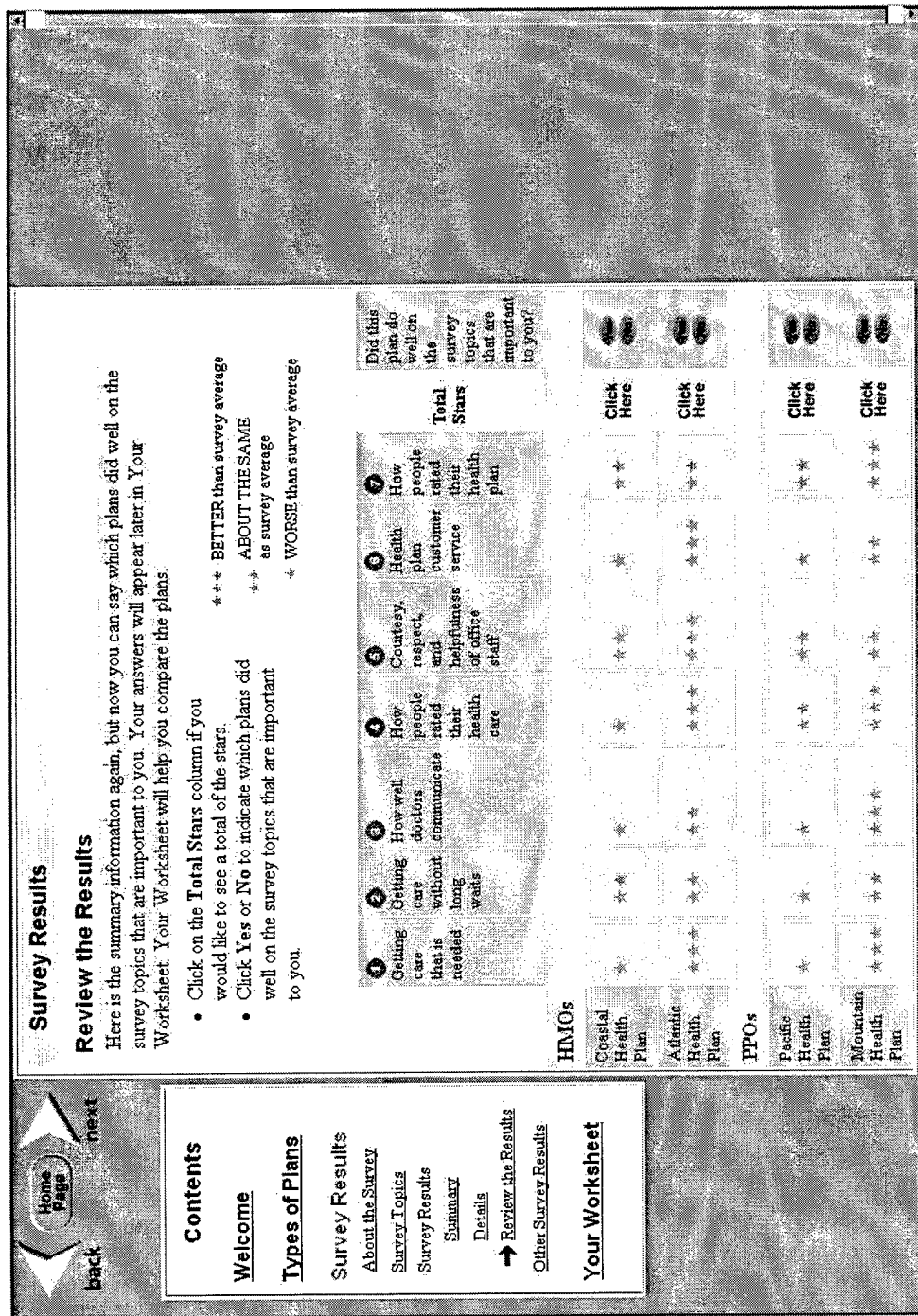


Figure 3B: "Welcome" Screen. Round 1.



Contents

Welcome

Types of Plans

Survey Results

Your Worksheet

Completing Your

Worksheet

Information

Contact Information

Making Your Choice

This worksheet can help you compare the plans. Use the information from the Decision Helper along with information you collect to fill it out.

- The "?" symbol in the worksheet below indicates that you didn't answer all the questions in the Survey Results section. Click on the "?" symbol to go back to the Survey Results section and answer the questions.
- You can fill out the last four columns after you collect more information from your benefits office, the plans, and your doctor.

Be sure to print this worksheet so that you can fill it out!

These answers came from your input in the Survey Results section.

Answer these questions using the information you collect.

Plan Type	Did this plan do well for adults?	Does the plan have for you like?	Does the plan have benefits you want?	Does the plan have costs you can afford?	Other plan info
Coastal Health Plan	?				
Atlantic Health Plan	?				
Pacific Health Plan	?				
Mountain Health Plan	?				

Figure 3F: "Your Worksheet" Screen. Round 1.

APPENDIX 4: DECISION HELPER, VERSION 2.0 SCREENS-ROUND 2 OF USABILITY TESTING.

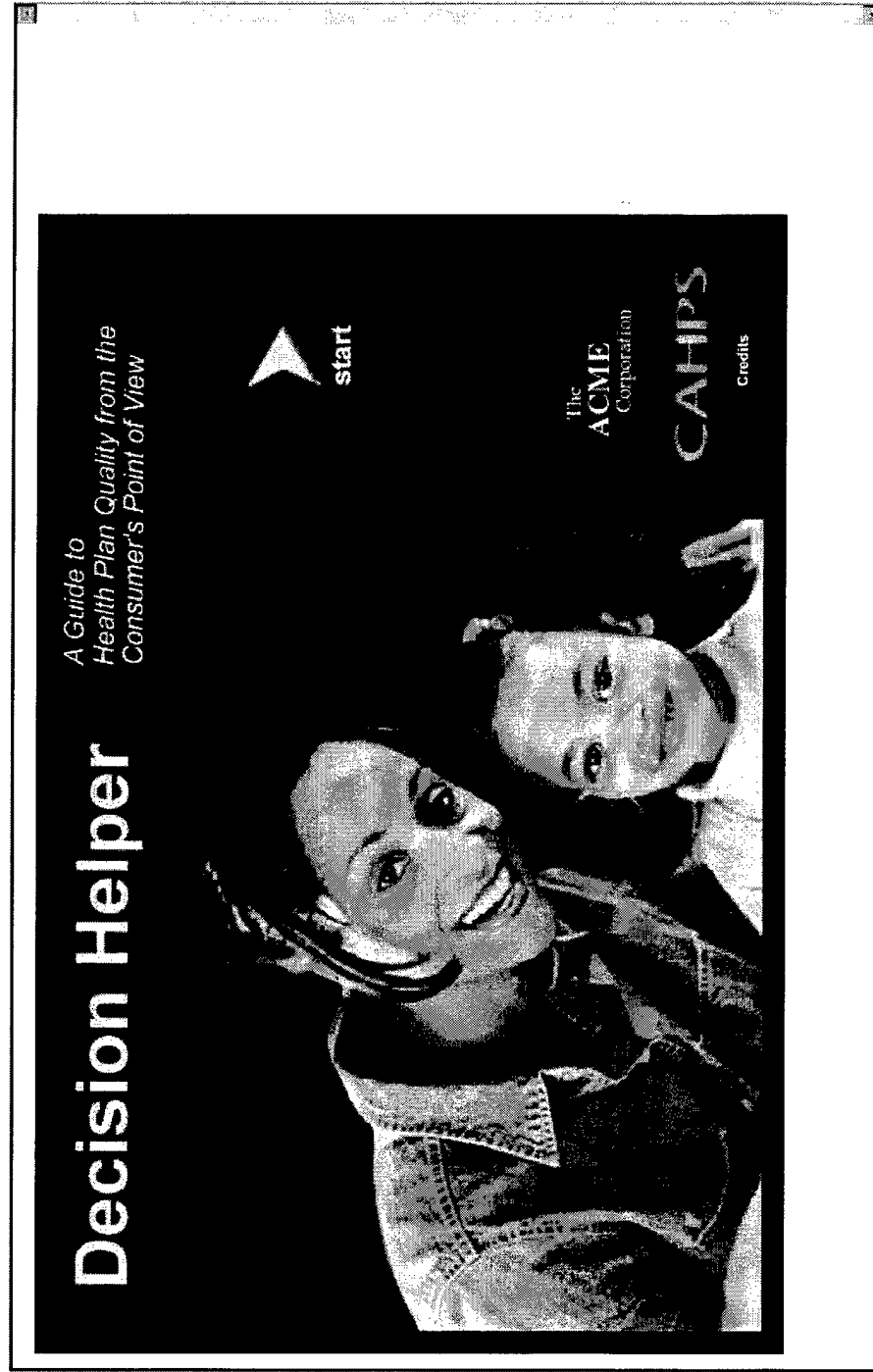


Figure 4A: "Splash" Screen. Round 1.

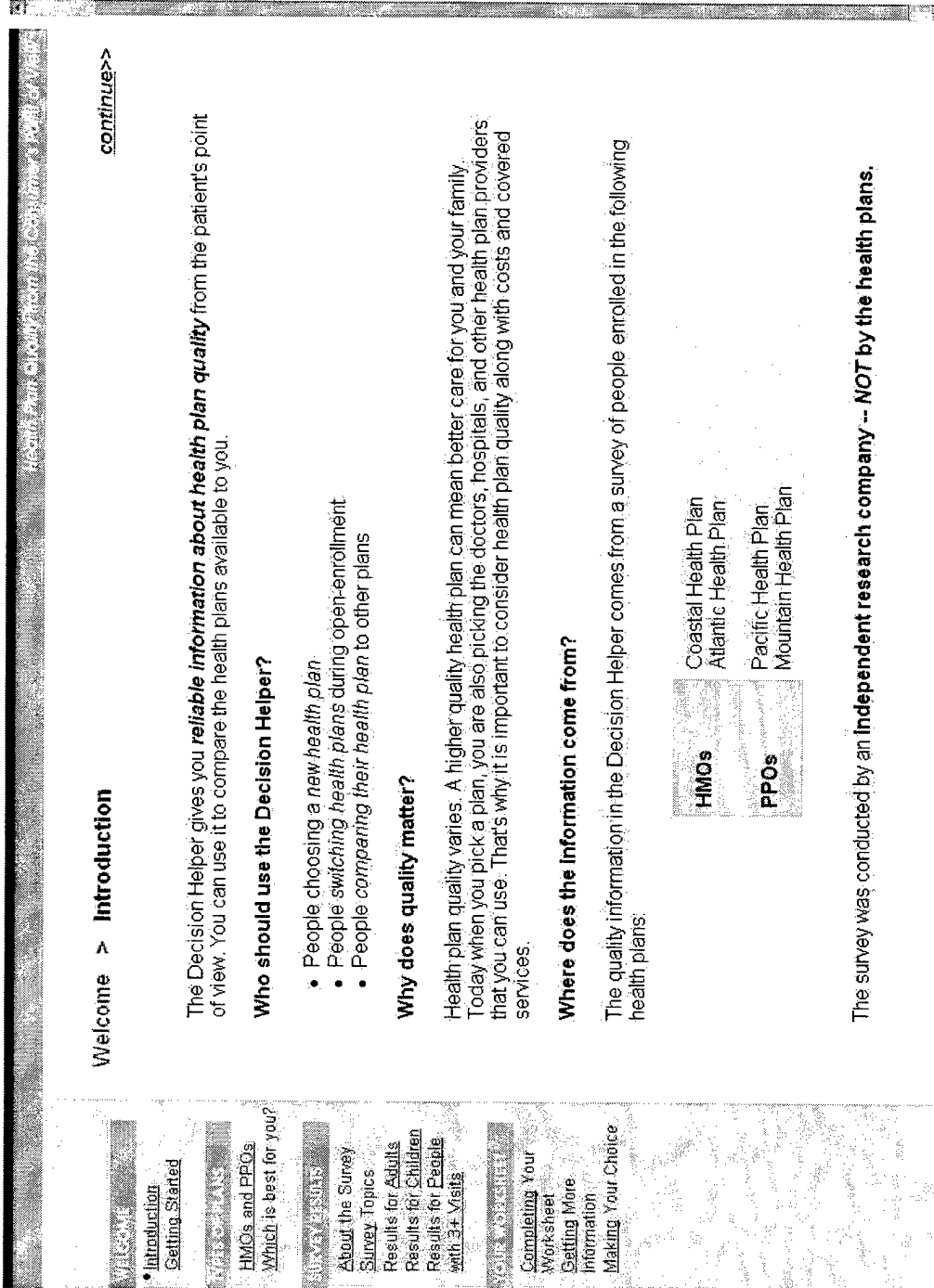


Figure 4B: "Welcome" Screen. Round 2.

Decision Helper

Health Plan Grading from the Consumers Point of View

- INTRODUCTION**
 - Introduction
 - Getting Started
- TIPS OF PLANS**
 - HMOs and PPOs
 - Which is best for you?
- SURVEY RESULTS**
 - About the Survey
 - Survey Topics
 - Results for Adults
 - Summary - 1 chart
 - Details - 7 graphs
 - Review the Results
 - Results for Children
 - Summary - 1 chart
 - Details - 7 graphs
 - Review the Results
 - Results for People with 3+ Visits
 - Summary - 1 chart
 - Details - 7 graphs
 - Review the Results
- YOUR WORKSHEET**
 - Completing Your Worksheet
 - Getting More Information
 - Making Your Choice

Survey Results > Results for Adults > Summary [continue>>](#)

Adults who had been enrolled in their current health plan for at least 12 months answered survey questions about the care they received in the previous 12 months. What do the stars tell you?

* BETTER than survey average
 ** ABOUT THE SAME as survey average
 * WORSE than survey average

	1 Getting care that is needed	2 Getting care without long waits	3 How well doctors communicate	4 How people rated their health care received	5 Courtesy, respect, and helpfulness of office staff	6 Health plan customer service	7 How people rated their health plan
HMOs							
Coastal Health Plan	*	**	*	*	**	*	*
Atlantic Health Plan	**	**	**	**	**	**	**
PPOs							
Pacific Health Plan	*	*	*	**	**	*	**
Mountain Health Plan	**	**	**	**	**	**	**

Figure 4C: "Summary" Screen with Start Charts. Round 2.

Decision Helper

Health Plan Quality from the Consumer's Point of View

WELCOME
[Introduction](#)
[Getting Started](#)

TYPES OF PLANS
[HMOs and PPOs](#)
[Which is best for you?](#)

SURVEY RESULTS
[About the Survey](#)
[Survey Topics](#)
[Results for Adults](#)

- Summary - 1 chart
- Details - 7 graphs

[Review the Results](#)
[Results for Children](#)

- Summary - 1 chart
- Details - 7 graphs

[Review the Results](#)
[Results for People with 3+ Visits](#)

- Summary - 1 chart
- Details - 7 graphs

[Review the Results](#)

YOUR WORKSHEET
[Completing Your Worksheet](#)
[Getting More Information](#)
[Making Your Choice](#)

Survey Results > Results for Adults > **Details**

[continue>>](#)

- Getting care that is needed
- Getting care without long waits
- How well doctors communicate
- How people rated their health care received
- Courtesy, respect, and helpfulness of office staff
- Health plan customer service
- How people rated their health plan

① Getting care that is needed

The bar graphs show answers to survey questions that asked adults how much of a problem it was to:

- Find a personal doctor or nurse
- Get a referral to a specialist that they wanted to see
- Get the care they and their doctor believed necessary
- Get care approved by the health plan without delays

What do the bar graphs tell you?

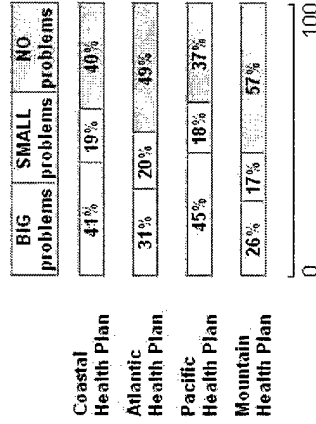


Figure 4D: "Details" Screen with Bar Graphs. Round 2.

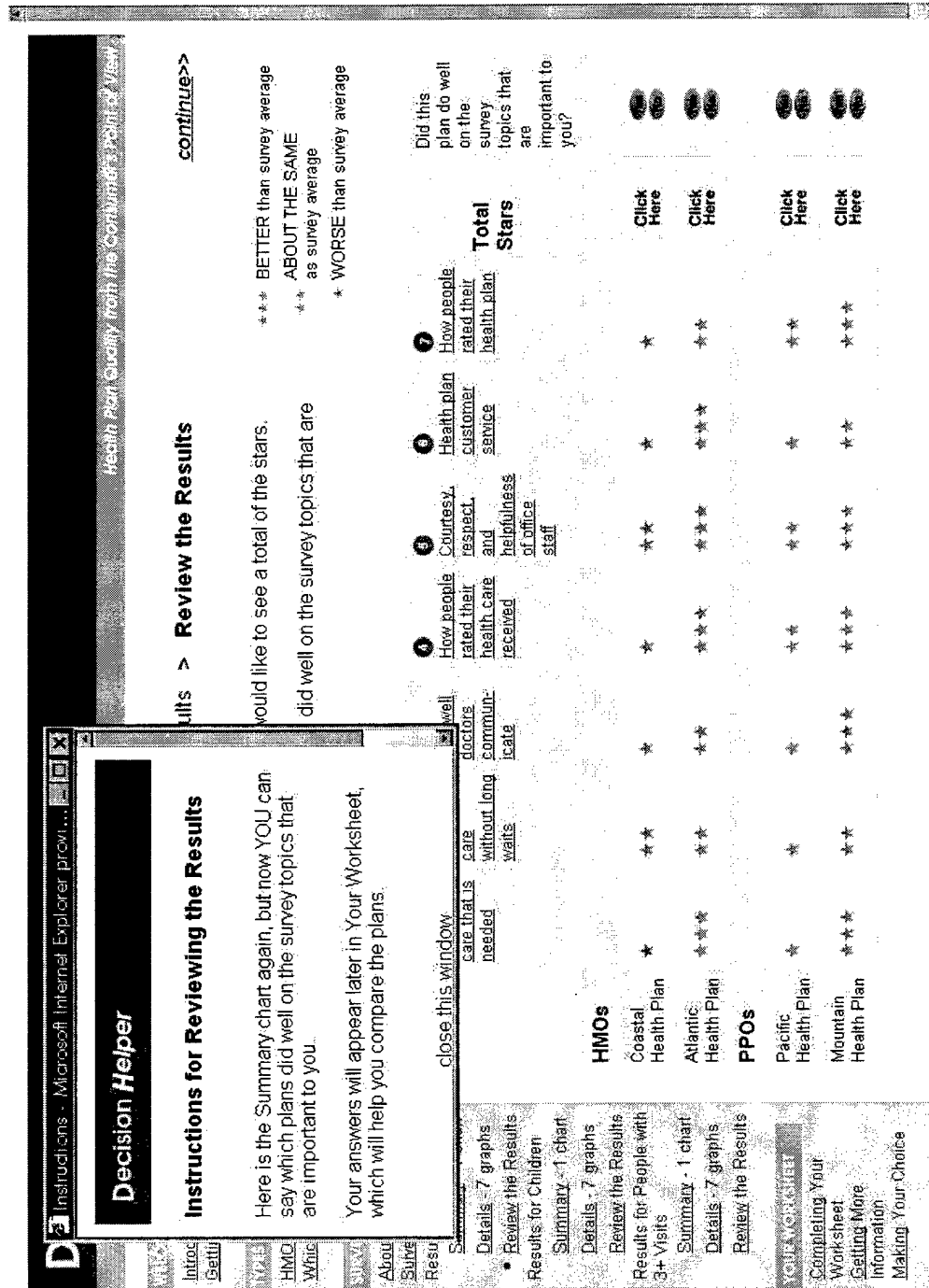
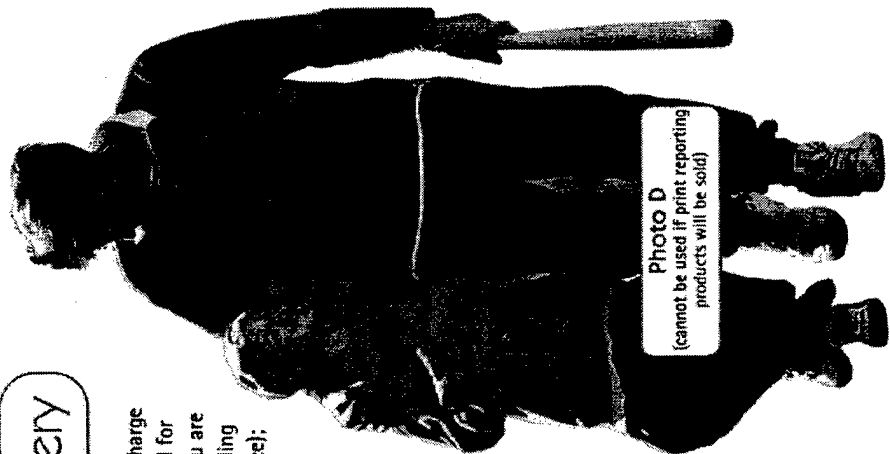
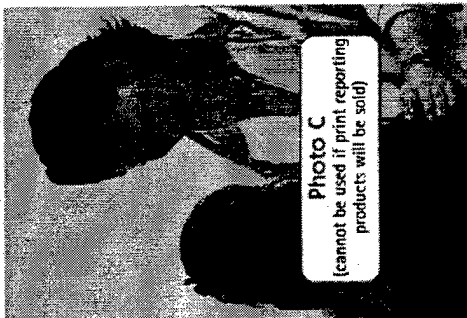

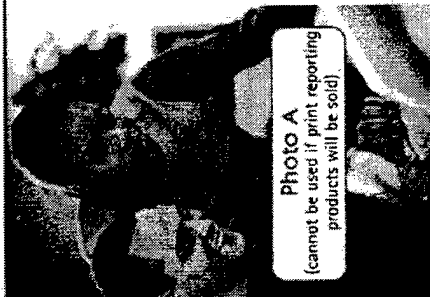


Figure 4E: "Review the Results" Screen with Informational Pop-Up Screen. Round 2.

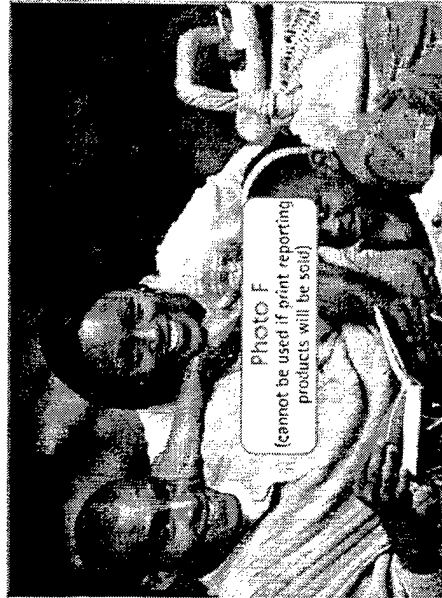
APPENDIX 5: ROUND 2. ALTERNATE SPLASH SCREENS.



CAHPS 2.0 Photo Gallery

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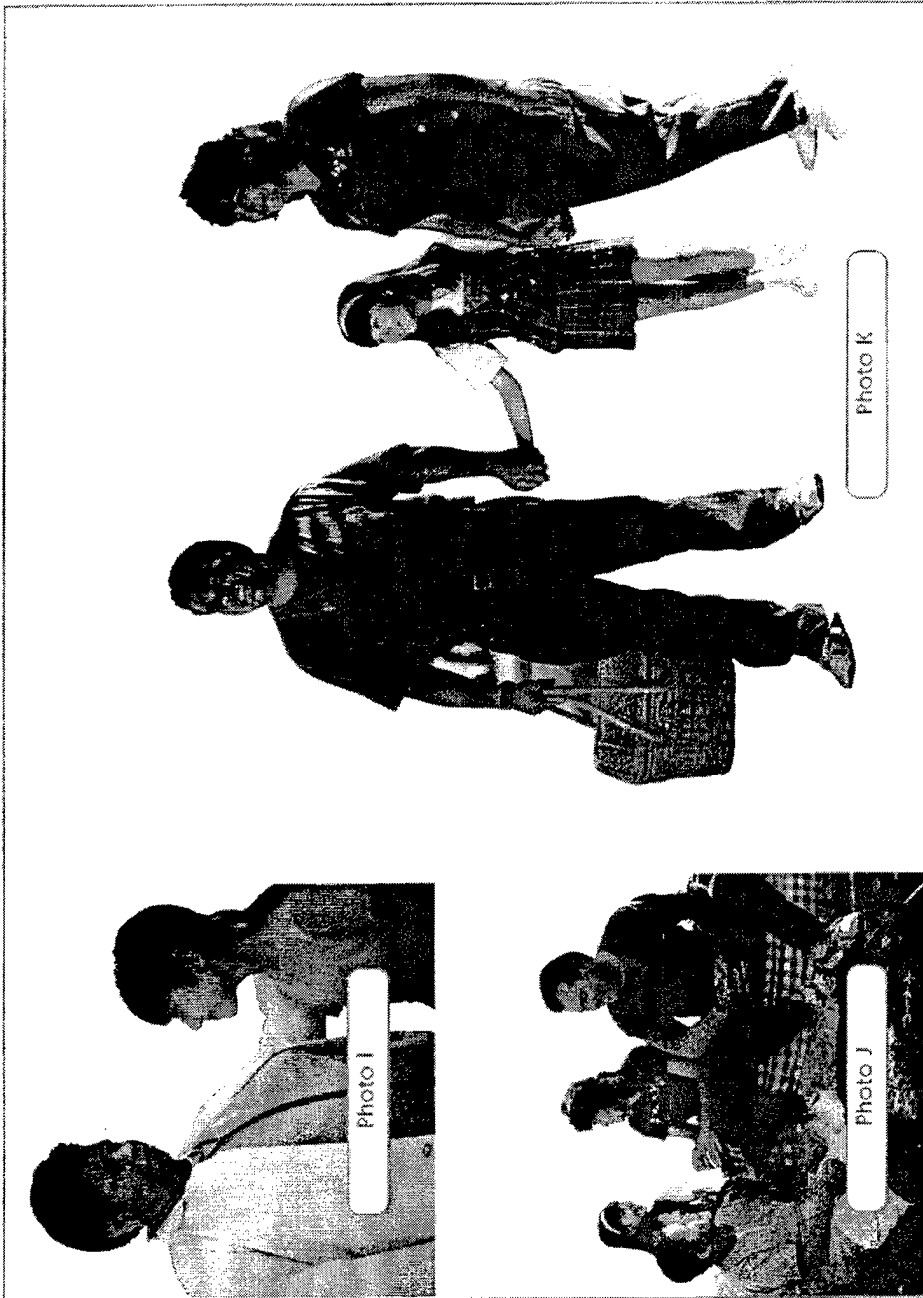




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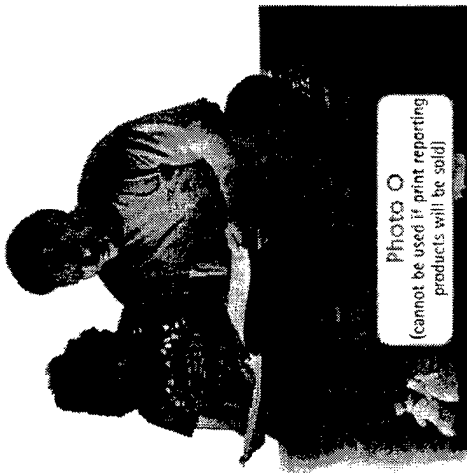


Photo O
(cannot be used if print reporting
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REFERENCES

- Berry, Sandra H., Janice Blanchard, Mark Spranca, Lisa Payne Simon, David E. Kanouse, *"Who Is Using the Internet to Find Information About Health?"* presented at the annual meeting of the Association for Health Services Research, Los Angeles, CA, June 26, 2000.
- Crofton, Christine, James S. Lubalin, and Charles Darby, "Foreword," *Medical Care*, Vol. 37, No. 3, Supplement, March 1999, pp. MS1-MS9.
- Farley, Donna O., Mark N. Elliot, Pamela F. Short, Peter Damiano, David E. Kanouse, and Ron D Hays. Impact of CAHPS® performance information on health plan choices by Iowa Medicaid beneficiaries, Manuscript submitted for publication, 2001.
- Farley, Donna O., Short, Pamela Farley, Elliott, Marc N., Kanouse, David E., Brown, Julie A., & Hays, Ron D., "Effects of CAHPS® health plan performance information on plan choices by New Jersey Medicaid beneficiaries," *Health Services Research*, in press.
- Harris-Kojetin, Lauren D., Floyd J. Fowler, Julie A. Brown, Jenny A. Schnaier, and Sheri F. Sweeny, "The use of cognitive testing to develop and evaluate CAHPS® 1.0 core survey items," *Medical Care*, Vol. 37, No. 3, Supplement, March 1999, pp. MS10-MS21.
- Short, Pamela Farley, Lauren McCormack, Judith Hibbard, James A. Shaul, Lauren Harris-Kojetin, Michael Fox, Peter Damiano, Jennifer D. Uhrig, and Paul D. Cleary, "Similarities and Difference in Choosing Health Plans," Manuscript submitted for publication, 2001.
- Spranca, Mark, David E. Kanouse, Marc N. Elliott, Pamela Farley Short, Donna O. Farley, and Ron D. Hays, "Do consumer reports of health plan quality affect health plan selection?" *Health Services Research*, Vol. 35, 2000, pp. 933-947.